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# Exploring the Macroeconomic Trajectory in Romania: Analysis of Key Developments and Trends in the Period 2022–2026

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**Abstract:** *This scientific article endeavors to dissect the complex and dynamic macroeconomic landscape of Romania, offering an extensive analysis of pivotal developments and emerging trends from 2022 to 2026. The study navigates through a diverse array of economic indicators, policy frameworks, and global influences, seeking to unravel the multifaceted forces shaping Romania's economic trajectory during this critical period.*

*The analysis unfolds against the backdrop of a rapidly evolving global economic scenario, with Romania standing at the crossroads of various challenges and opportunities. By scrutinizing key sectors such as finance, industry, and services, as well as closely examining fiscal policies and their impacts, this research aims to provide a holistic understanding of the nation's economic dynamics.*

*In summary, this article aspires to be a comprehensive guide to Romania's macroeconomic landscape from 2022 to 2026. Through a nuanced exploration of key developments and emerging trends, the research contributes to the body of knowledge surrounding Romania's economic dynamics. It serves as a valuable resource for policymakers, economists, and stakeholders seeking to navigate the complexities of the country's economic journey and make informed decisions in the pursuit of sustainable growth and prosperity.*

## 1. INTRODUCTION

The study of a country's macroeconomic indicators is of crucial importance for understanding and assessing the health of its economy. These indicators provide essential information for decision-makers, governments, investors, businesses, and citizens, enabling them to evaluate the overall performance of the economy and make informed decisions. Here are some reasons why studying these indicators is so important:

- Macroeconomic indicators, such as GDP (gross domestic product), provide a measure of the overall economic performance of a country. They reflect the total value of goods and services produced and consumed and are essential for evaluating economic growth.
- Studying macroeconomic indicators allows for the observation and interpretation of the economic cycle of a country. This helps anticipate periods of economic expansion or recession, providing time for adjustments to public policies and business strategies.
- Indicators such as inflation and the balance of payments provide information about the monetary and financial stability of a country. These aspects are crucial for maintaining a healthy economy and preventing financial crises.
- Governments use macroeconomic indicators to develop and adjust economic policies. These indicators provide information on the effectiveness of fiscal and monetary policies, as well as the level of public debt and government spending.

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- Investors, both domestic and international, analyze macroeconomic indicators to assess investment opportunities. Economic stability, GDP growth, and other indicators influence investment decisions.
- Macroeconomic indicators have a direct impact on social well-being. Economic growth can lead to an improvement in the standard of living, job creation, and enhanced access to public services.
- The study of macroeconomic indicators can highlight income distribution in a country. This is crucial for evaluating social equity and taking appropriate measures to reduce disparities.

According to Stancu and Mihail (2009), "Macroeconomics. Static and Dynamic Models of Behavior. Theory and Applications" (p. 51), measuring the results of economic activity at the level of a market economy of a country, as well as conducting macroeconomic correlations and comparisons with other countries, is done using macroeconomic indicators, among which are mentioned:

- Gross Domestic Product (GDP),
- Gross National Product (GNP),
- Net Domestic Product (NDP),
- Net National Product (NNP),
- Gross National Income (GNI).

Popescu and Ciurlău (2013) summarize in "Macroeconomics" (p. 16-17) what are the primary important issues addressed by macroeconomics, among which the following are considered most significant:

a)   How can a country's national income be increased, and how can it be distributed more fairly?
b)   What are the causes of economic cycles (business cycles), and how can the risks generated by their exaggerated amplitudes be managed or controlled?
c)   How can employment be improved and unemployment reduced by managing or directing aggregate demand to an appropriate level?
d)   How can inflation be managed or controlled?
e)   How can the negative effects of demand manipulation be reduced through actions on supply?
f)   What policies should governments adopt to achieve often contradictory objectives?
g)   How can negative externalities such as poverty or pollution be managed or kept under control?
h)   How can rationality and hope, as fundamental values of sustainable human development, be harmonized?
i)   How can an economy be beneficially opened up to the outside world, without being affected by the possible negative externalities of globalization?

The prosperity and sustainability of the economy are among the most important aspects to be supervised both from national and global perspectives, considering that recession and prosperity periods occur regularly with some amplitudes. However, beyond these fluctuations and their effects, the most important outcomes are performance and economic growth. Currently, the relevant literature provides many benchmarks for shaping economic growth without distinguishing between prosperity and support issues. From an economic prosperity perspective, emphasis may be put on the occurrence of differential power at the regional level primarily due to uneven economic growth, but certain factors may be considered to accelerate this process, so the differences may also change (Ibinceanu et al., 2021).

Overall, monitoring and interpreting macroeconomic indicators are essential tools for evaluating and improving the economic health of a country, with significant implications for the lives of citizens and the business environment.

## 2. ROMANIA IN THE EUROPEAN CONTEXT

The global economy and financial system have undergone significant transformations in recent decades, driven by globalization and digitalization, or reshaped by critical inflection points such as the 2008 financial crisis, the Covid-19 pandemics, overlapping crises (health crisis, energy crisis), profound ongoing structural changes in the economy, rising inflation, and geopolitical tensions. These events have prompted paradigm shifts, alterations in standards and regulations, the introduction of new intervention tools, and the adjustment of policies to adapt to new realities.

The combined impact of these extraordinary events has necessitated a substantial, unprecedented response from authorities worldwide to alleviate their economic and social repercussions, as well as foster strengthened strategic cooperation.

In such circumstances, visionary and sustainable development poses a challenge, with responsible financing playing a pivotal role in aligning robust development with environmental, ethical, and social values.

At both the national and European levels, 2023 presents an opportunity for significant macroeconomic developments. These developments are driven by the recovery from the crisis period and the stabilization of the economy post-pandemic, as well as by shifts in consumer behavior towards a greater focus on sustainability goals.

Even if at first glance, the European macroeconomic trends are not particularly opportune, with a contraction of real Gross Domestic Product (real GDP) expected by approximately 0.1% by the first quarter of 2023 and an average inflation rate of 10.40% in the European Union (European Central Bank, 2022); on the market itself, the trend of inflation rate reduction is significantly present. However, the macroeconomic prognosis is developed from an optimistic perspective, giving an average inflation rate of 3.6% by the end of 2023 (Iacob et al., 2023).

Regarding Romania's situation, which has been powerfully impacted by an inflation rate of 16.37% at the end of 2022, the macroeconomic specialists did forecast a deflationary trend, reaching the level of 6.5% by the end of 2023, a value similar to Bulgaria, Czech Republic, Hungary, Poland, and Slovenia – countries with similar economic particularities. Meanwhile, the extremities of the inflation rate's range at the European level by the end of 2023 will be recorded by Turkey (29.6%) and Greece (1.5%) (Iacob et al., 2023).

During the 2021-2027 period, within the Cohesion Policy, Romania has been allocated European funds totaling 31.35 billion euros. Additionally, the "Recovery and Resilience Mechanism" facility, has a budget allocated of 29.2 billion euros to be utilized in key areas such as infrastructure, education, healthcare, agriculture, environment, and energy, as well as for the modernization of major public systems.

Romania must calibrate an appropriate mix of macroeconomic policies that do not underestimate the vulnerabilities of the economy – large deficits as a starting handicap, and a fragile public budget with very low revenues.

Prioritization, prudence, and moderation in formulating fiscal budget policies are necessary for accumulating fiscal space, which should be directed towards financing policies and expenditures with an impact on economic growth in line with European priorities.

In 2023, high inflation and anemic private credit growth constrained domestic demand, while external demand was low. However, a significant increase in gross fixed capital formation, fueled by EU-funded investment in public infrastructure, offset the slowdown in private consumption and inventory reduction. Additionally, the negative contribution of net exports to growth decreased. A resilient labor market and two minimum wage hikes cushioned the deceleration of real disposable incomes. Short-term indicators suggest a rebound in economic dynamics in the last months of 2023, supported by retail sales, services, and robust construction.

The uptick and slight improvements in certain outlook sentiment indicators suggest positive prospects for economic activity in 2024. Supported by expectations of stronger private credit growth and ongoing increases in real disposable incomes, real GDP is projected to expand by 2.9% in 2024, slightly below the expectations from autumn 2023. While private consumption is anticipated to pick up pace, investment is expected to remain the primary driver of GDP growth in 2024. Monetary policy is anticipated to stay restrictive throughout 2024, gradually easing as inflationary pressures diminish. This relaxation of monetary and financial conditions, coupled with heightened external demand, is poised to result in a real GDP growth of 3.2% in 2025.

HICP inflation slowed to 7% in December 2023, reducing overall inflation for the year to 9.7% from 12% in 2022. The decrease in inflation can be attributed to a significant slowdown in private credit growth amidst tight monetary conditions, as well as lower energy and food prices. Inflation excluding energy and food decreased less and remained above headline inflation at the end of 2023, driven by strong price growth in services and non-food items. Except for a brief pause at the beginning of 2024 due to some increases in indirect taxes, prices are expected to continue decelerating. Average annual HICP inflation is forecasted to be 5.8% in 2024 before further slowing to 3.6% in 2025. However, risks lean towards a more gradual disinflationary process if salaries and pensions continue to rise rapidly EC (2024).

At the European Union level, the situation is as follows: inflation is poised to decelerate more rapidly than initially anticipated in the autumn of 2023. The Harmonised Index of Consumer Prices (HICP) inflation in the EU is projected to decline from 6.3% in 2023 to 3.0% in 2024 and further to 2.5% in 2025. Similarly, in the euro area, it is anticipated to slow down from 5.4% in 2023 to 2.7% in 2024 and 2.2% in 2025. Economic growth is expected to regain momentum in 2024 following a sluggish start to the year. In 2023, growth was hindered by factors such as weakening household purchasing power, stringent monetary policies, reduced fiscal support, and diminishing external demand. Although the EU economy narrowly avoided a technical recession in the latter part of last year, the outlook for the first quarter of 2024 remains subdued.

Nevertheless, there is anticipation of a gradual acceleration in economic activity throughout the year. With the ongoing moderation of inflation, real wage growth, and a resilient labor market, consumption is expected to rebound. Despite declining profit margins, investment is projected to benefit from a gradual relaxation of credit conditions and the continued implementation of the Recovery and Resilience Facility. Additionally, trade with foreign partners is forecasted to normalize after a lackluster performance last year. The pace of growth is projected to stabilize from the second half of 2024 until the end of 2025 (EC, 2024).

## 3. ANALYSIS OF THE MAIN INTERNAL MACROECONOMIC DEVELOPMENTS AND TRENDS IN ROMANIA, 2022-2026

The data provided for analysis and interpretation derive from the Report on the Macroeconomic Situation for the year 2023 and its Projection for the years 2024-2026 developed by the Ministry of Finance of Romania.

The significant changes witnessed in the global economy, driven by globalization and digitalization, or influenced by pivotal turning points such as the 2008-2009 financial crisis, the Covid-19 pandemic, compounded crises, rising inflation, and geopolitical tensions, have necessitated an unprecedented response from authorities worldwide to mitigate their economic and social repercussions. This response has required strengthened strategic cooperation. The implemented measures have successfully facilitated the recovery of the Romanian economy, which experienced a growth of 4.6% in 2022, surpassing the estimated levels for both the EU and the Eurozone at 3.3% and 3.2% respectively in the same year.

For the period 2024-2026, the projected average annual economic growth rate stands at 4.8%, with a peak expected in 2025 at 5.0%. This estimation relies on an upsurge in both public and private investments within key sectors of the economy, under the condition of maximizing the absorption of European funds from the National Recovery and Resilience Plan (PNRR) and the multiannual financial framework.

**Table 1.** Dynamic Shifts in Medium-Term Macroeconomic Indicators 2022-2026: Year-on-Year Percentage Fluctuations

| Evolution of Medium-Term Macroeconomic Indicators<br>- Percentage Change Compared to the Previous Year - | | | | | |
|---|---|---|---|---|---|
| | **2022** | **2023** | **2024** | **2025** | **2026** |
| **Gross Domestic Product (GDP)**<br>**– current prices – billions Lei** | 1,396.2 | 1,552.1 | 1,713.7 | 1,858.2 | 1,998.3 |
| **– real growth, %** | 4.6 | 2.8 | 4.8 | 5.0 | 4.5 |
| **Current account – million Euros** | -24,827 | -26,580 | -26,946 | -26,769 | -26,522 |
| **– % of GDP** | -8.8 | -8.5 | -7.9 | -7.3 | -6.8 |
| **Increase in consumer price levels, %**<br>**- end of the year**<br>**- annual average** | 15.2*[)]<br>13.5*[)] | 8.0*[)]<br>9.6*[)] | 3.7<br>5.7 | 2.9<br>3.2 | 2.6<br>2.9 |
| **Average gross monthly salary – lei** | 6,120 | 6,789 | 7,484 | 8,076 | 8,665 |
| **Average net monthly salary – lei** | 3,801 | 4,235 | 4,686 | 5,071 | 5,451 |
| **Real salary earnings, %** | -2.0 | 1.7 | 4.7 | 4.9 | 4.5 |
| **Average number of employees**<br>**– thousands of individuals** | 5,175 | 5,252 | 5,383 | 5,523 | 5,635 |
| **Number of registered unemployed at the end of the year**<br>**– thousands of individuals** | 227 | 215 | 209 | 201 | 190 |
| **– registered unemployment rate, %** | 2.9 | 2.7 | 2.6 | 2.4 | 2.3 |

\* The inflation forecast has been achieved under legislative conditions

**Source:** Government of Romania, Ministry of Finance, 2022

The table illustrates the evolution of medium-term macroeconomic indicators, showcasing the percentage change compared to the previous year for the years 2022 through 2026.

Alternatively, based on these data, the following conclusions can be drawn:
• The "Gross Domestic Product (GDP)" at current prices, measured in billions of Lei, indicates the total value of goods and services produced within the economy during the specified period. The data shows an increasing trend from 1,396.2 billion Lei in the first year to 1,998.3 billion

Lei in the final year. This suggests overall economic growth and expansion over the period. Additionally, the "real growth" represents the percentage change in GDP after adjusting for inflation. This indicates the actual growth rate of the economy in real terms. The data shows fluctuating growth rates over the period, with the highest growth rate of 5.0% occurring in the fourth year. Overall, the positive growth rates suggest a generally healthy and expanding economy, although the growth rate varies from year to year.

- The "Current account" in million Euros represents the balance of trade in goods, services, and income between a country and its trading partners, including net transfers. A negative value indicates that the country imports more goods, services, and capital than it exports, resulting in a deficit. The data shows a fluctuating trend in the current account deficit over the specified period, with values ranging from -24,827 million Euros to -26,946 million Euros. This indicates variations in the trade balance and external financial flows over time. Additionally, the "% of GDP" figure represents the current account deficit as a percentage of the Gross Domestic Product (GDP). This ratio provides insight into the size of the current account deficit relative to the size of the economy. The data shows a declining trend in the percentage of GDP over the period, indicating a decreasing reliance on external financing to sustain economic activities. However, despite the reduction, the current account deficit remains negative throughout the period, suggesting that the economy continues to rely on foreign borrowing and investment to maintain its current level of economic activity.

- The "Increase in consumer price levels" represents the rate of inflation, expressed as a percentage. This indicates the annual change in the average price level of goods and services consumed by households. The data is presented for both the end of the year and the annual average inflation rates. The values range from 15.2% to 2.6% for the end of the year, and from 13.5% to 2.9% for the annual average over the specified period. These figures reflect the varying rates of inflation experienced annually, with higher rates indicating more significant increases in consumer prices and potentially higher inflationary pressures on the economy. Conversely, lower rates suggest more moderate price increases and may indicate a more stable economic environment.

- The "Average gross monthly salary" in Lei (the Romanian currency) indicates the mean amount of money earned by employees per month before any deductions or taxes. Over the specified period, the average gross monthly salary increases steadily from 6,120 Lei to 8,665 Lei. This upward trend suggests a positive growth in wages over time.

- The "Average net monthly salary" in Lei represents the mean amount of money earned by employees per month after deductions and taxes have been accounted for. Over the specified period, the average net monthly salary increases gradually from 3,801 Lei to 5,451 Lei. This upward trend indicates a positive growth in take-home pay for employees over time, reflecting potential improvements in disposable income.

- The "Real salary earnings" percentage reflects the change in purchasing power of employees' salaries after adjusting for inflation. A positive percentage indicates an increase in purchasing power, while a negative percentage signifies a decrease. Over the specified period, real salary earnings show a mixed trend, starting with a decrease of 2.0% in the first year and then steadily increasing to positive values in subsequent years, reaching a peak of 4.9% in the fourth year before slightly decreasing to 4.5% in the final year. This suggests that, overall, there has been an improvement in the real purchasing power of employees' salaries over the period analyzed.

- The "Average number of employees" indicates the mean number of individuals employed over the specified period, measured in thousands. In this case, the average number of employees increases gradually from 5,175 thousand in the first year to 5,635 thousand in the final year. This upward trend suggests a growth in employment opportunities over the period, indicating potential expansion in the labor market and economic activity.

- The "Number of registered unemployed at the end of the year" represents the total count of individuals who are registered as unemployed by the end of each year, measured in thousands. The data shows a declining trend from 227 thousand in the first year to 190 thousand in the final year. This indicates a reduction in the number of individuals actively seeking employment over the specified period. Additionally, the "registered unemployment rate" is the percentage of the labor force that is unemployed and actively seeking employment, based on the total number of individuals in the labor force. This rate also decreases gradually over the specified period, from 2.9% in the first year to 2.3% in the final year. This suggests an improvement in labor market conditions and a decreasing rate of unemployment over time.

## 4. CONCLUSION

In conclusion, the study of macroeconomic indicators is vital for comprehending and assessing the economic health of a country. These indicators offer crucial insights for decision-makers, governments, investors, businesses, and citizens, facilitating the evaluation of overall economic performance and informed decision-making. Understanding macroeconomic indicators is essential for several reasons:

- Measurement of Economic Performance: Macroeconomic indicators such as GDP provide a measure of a country's overall economic performance, reflecting the total value of goods and services produced and consumed, and are fundamental for assessing economic growth.
- Observation of Economic Cycles: Studying these indicators enables the observation and interpretation of a country's economic cycle, helping to anticipate periods of expansion or recession and allowing for adjustments to public policies and business strategies.
- Monetary and Financial Stability: Indicators like inflation and balance of payments offer insights into the monetary and financial stability of a country, crucial for maintaining a healthy economy and preventing financial crises.
- Policy Development and Adjustment: Governments use macroeconomic indicators to develop and adjust economic policies, providing information on the effectiveness of fiscal and monetary policies, public debt levels, and government spending.
- Investment Decisions: Investors analyze these indicators to assess investment opportunities, as factors like economic stability, GDP growth, and inflation directly influence investment decisions.
- Social Well-being: Macroeconomic indicators have a direct impact on social well-being, as economic growth can lead to improvements in the standard of living, job creation, and better access to public services.
- Income Distribution: Studying macroeconomic indicators can highlight income distribution within a country, crucial for evaluating social equity and implementing measures to reduce disparities.

In summary, the medium-term macroeconomic indicators for Romania suggest positive trends in economic growth, employment, and inflation control. The country is expected to experience a favorable economic environment with improving salary levels and decreasing unemployment rates over the forecast period.

In the medium term, prices are expected to fall within the inflation target margins set by the National Bank of Romania, starting from the year 2025, and by the year 2026, to return to values below 3%, both as an annual average and at the end of the year. The forecasts account for both normal agricultural years and the stabilization of energy prices and other global commodities, as well as a slight nominal depreciation of the national currency against the euro.

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# Impact of Incentives on Public Sector Performance: Comparing African and European Systems

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**Abstract:** *This paper examines the varying impact of financial and non-financial incentives on public sector performance across Africa and Europe. Using a mixed-method comparative analysis, the study highlights key differences: in Africa, intrinsic motivators such as job satisfaction and organizational commitment drive productivity, while in Europe, structured financial incentives like performance-related pay (PRP) play a significant role. However, the effectiveness of PRP is uneven, particularly in decentralized government institutions. The paper advocates for a hybrid incentive model that integrates both intrinsic and extrinsic motivators, tailored to each region's cultural and economic contexts, to enhance public sector performance.*

## 1. INTRODUCTION

Public sector performance remains a global concern as governments strive to improve efficiency and service delivery. Both financial and non-financial incentives have been introduced as potential drivers of productivity, yet their success is deeply influenced by the cultural, economic, and regional differences that shape public institutions. In Africa, where public sector employees often prioritize intrinsic rewards such as commitment and job satisfaction, financial incentives like performance-related pay (PRP) are less prevalent and face institutional challenges. By contrast, European public sectors, particularly in Western Europe, have widely adopted PRP systems, yet face difficulties in uniformly applying them across all levels of public service. Building on this foundational understanding, the next section outlines the research methodology used to compare the incentive models across African and European public sectors. By employing both quantitative and qualitative methods, the study aims to offer a holistic view of how different incentive structures influence employee productivity in these regions.

## 2. METHODOLOGY AND LITERATURE REVIEW

This research adopts a mixed-methods approach to compare public sector incentive models in Africa and Europe. Quantitative data was collected through content analysis of government reports, academic studies, and statistical records on public sector performance across both continents. This was complemented by qualitative interviews with public sector employees in selected African and European countries, focusing on their experiences with financial and non-financial incentives. By integrating these methods, the study aims to provide both numerical insights and subjective

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perspectives on how different incentive structures influence employee productivity. The comparative analysis framework was particularly chosen to identify the strengths and weaknesses of each region's incentive approach, with an emphasis on economic, political, and social contexts.

The literature reveals diverging views on the role of financial incentives in the public sector. Research from the Danish Institute AKF's findings were further elaborated upon and supported by Nobel Prize winner Joseph Stiglitz, alongside several co-authors, in a comprehensive empirical study titled "Ownership Change, Institutional Development and Performance" (Stiglitz et al., 2013). This study similarly concluded that "…privatization did not result in enhanced performance." Moreover, a more intuitive and realistic cost-efficiency curve for a typical public service delivery market would resemble the one depicted below:
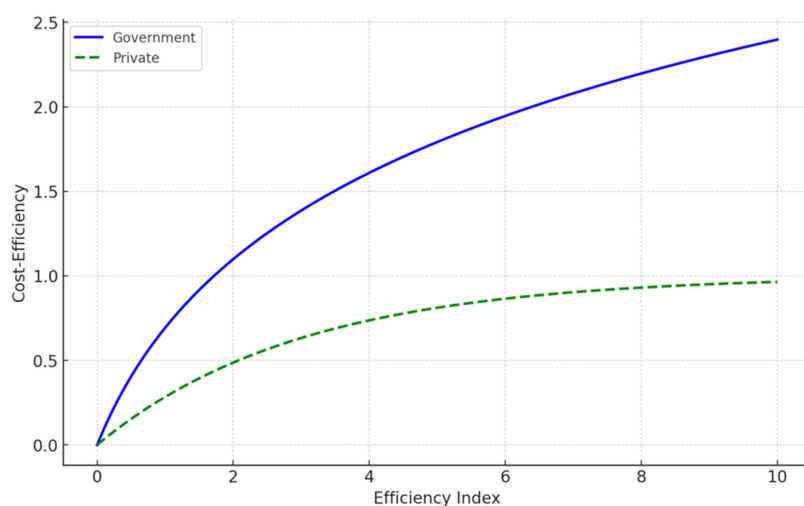


**Figure 1.** Cost-efficiency curve: Government vs Private
**Source:** OECD, 2020

This curve is based on recent research, highlighting how private firms often achieve short-term cost reductions, while public sector organizations prioritize stable, equitable service delivery (McKinsey, 2021; OECD, 2021).
- **Private Sector**: The green dashed curve shows a steep rise in efficiency initially due to market competition and rapid optimization but eventually plateaus as further improvements yield diminishing returns.
- **Government Sector**: The blue solid curve rises more gradually, indicating that while government organizations often experience slower efficiency gains due to regulatory constraints and broader societal goals, they may achieve more consistent, long-term stability.

Today, over 450 million individuals work in the public sector across national, subnational, and local government entities, as well as regulatory bodies. Their responsibilities range from providing public services, like justice, to managing social benefits, such as pensions (OECD, 2021). Despite the diverse nature of these roles, public sector employees share common traits. They work for publicly funded organizations governed by laws (Johnson, 2020), are driven by a strong sense of public service, and typically enjoy job security with a focus on work-life balance. These characteristics suggest that productivity improvements in one area of the public sector can likely benefit others.

Many researchers study financial incentives' impact on public sector productivity, recognizing money as a key driver of human behavior. While some nations embrace incentives, others

favor different approaches. Europe actively uses incentives through policy reforms, while Africa acknowledges their importance but focuses more on internal motivations like employee commitment, showing different views despite shared historical and geopolitical ties. In response to these differences, two key research questions were formulated:

- **Research Question 1:** How do financial and non-financial incentives influence public sector productivity in African and European contexts?
- **Research Question 2:** To what extent do structured financial incentives in European public sectors challenge or complement the intrinsic motivators that dominate in African public sectors?

This paper aims to address these questions by considering the economic, political, and social contexts of both regions. To do so, a mixed research design was employed, incorporating both quantitative and qualitative methods. Quantitative content analysis helped gather relevant data, while qualitative analysis provided insights into opinions and behaviors. These methods were framed within a comparative analysis, a common approach for political issues with economic implications. This paper will now present a clear overview of public sector employees in these regions.

## 2.1. Public Sector Employees

Public sector employees share common traits but differ based on their roles, the organizations they work for, and the services they deliver. Another key factor is their geographical origin. This chapter will explore the characteristics and public perception of public sector employees across different continents, followed by an analysis of how their productivity is assessed based on their region of origin.

## 2.2. Attributes of Public Sector Employees in Africa

In Africa, public sector employment forms a significant share of formal employment, particularly in low- and middle-income countries. Public sector workers often enjoy greater job security and gender inclusivity compared to the private sector. However, critical sectors such as healthcare and education remain understaffed. These structural challenges contribute to the limited effectiveness of financial incentives, as centralized human resource management systems often focus on job security and tenure rather than performance-based pay.

Similar to global trends observed in public sector employees, certain shared characteristics can also be identified among public sector workers in specific regions, such as Africa. These characteristics include:

- **Higher proportion of the workforce**: In many African countries, particularly those classified as lower middle-income or low-income, the public sector accounts for a significant share of formal employment, often comprising up to 50% of the workforce, surpassing the private sector (Saget & Yao, 2011).
- **Gender inclusion**: The public sector continues to dominate the private sector in terms of gender representation, with a notably higher proportion of African women employed in public sector roles, as illustrated in Figure 2.
- **High literacy levels**: Public sector employees in Africa are over three times more likely to have tertiary education compared to their private sector counterparts, despite being generally older.
- **Shortage in key sectors**: Despite large numbers of public sector workers, critical areas like healthcare and education remain understaffed. Only three countries can provide a doctor per 1,000 people, and in primary schools, the teacher-to-pupil ratio is over 1:2.

- **Inefficient management**: Human resource management in the public sector is often under-resourced, with just one officer or a small team handling recruitment, discipline, and documentation.
- **Centralized structure**: The public sector favors a centralized, hierarchical organization where roles and responsibilities are dictated by rank and authority.
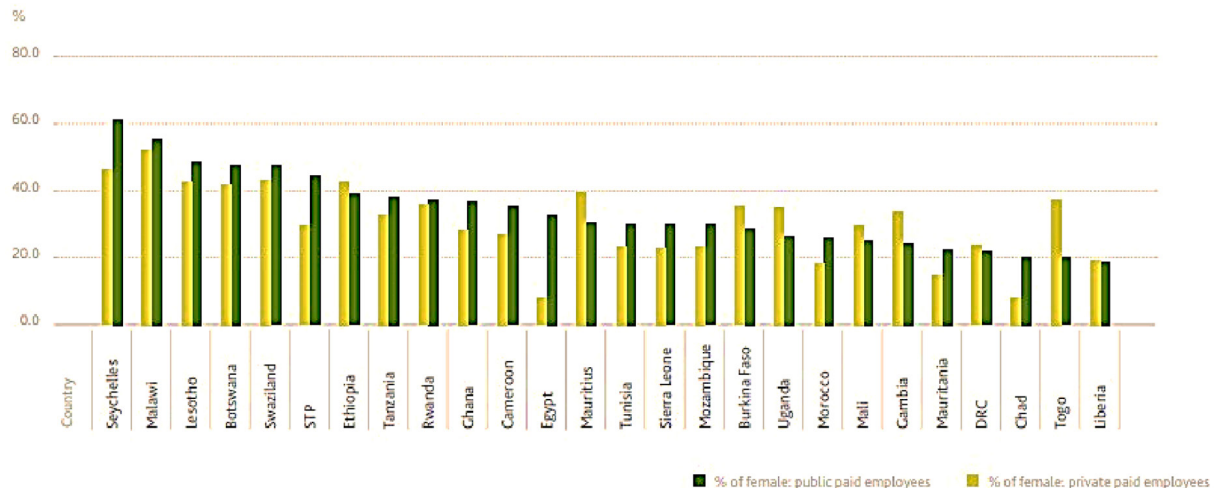


**Figure 2.** Comparison of African women in public vs. private sector employment.
**Source:** Mo Ibrahim Foundation, 2018

## 2.3. Characteristics of European Public Sector Employees

In Europe, public sector employment represents a smaller share of the formal workforce compared to Africa, especially in Western Europe. The growing use of contract workers has blurred the distinction between public and private sector employees, weakening traditional job security. European public sectors, however, are more likely to implement structured incentives, such as performance-related pay (PRP), to enhance productivity. These schemes, while effective in promoting performance at managerial levels, often face challenges in aligning with the more decentralized operations of public institutions.

In Europe, public sector employees exhibit several key characteristics:

- **Smaller Share of Workforce**: The proportion of public sector employees in Europe tends to be relatively low. Although the percentage of formal public sector employees in Eastern Europe aligns closely with that of Africa, when combined with data from Western Europe, the average public sector workforce falls well below half of formal employment, as demonstrated in Figure 3.
- **Blurring of Public and Private Employment**: In Europe, the line between public and private sector employees is less distinct compared to other regions. This is largely due to the growing prevalence of "public contract workers" who are employed by the state but lack the benefits of traditional statutory civil servants, such as job security (Hugrée & Pélissier, 2015).
- **Legal Framework Differences**: A key difference between public contract workers and statutory civil servants in Europe is the legal framework that governs them. While public agents are subject to civil law like private sector workers, statutory civil servants are governed by public law, as outlined by Thijs et al. (2017).

- **Hybrid Management and Training Systems**: European public sector human resource management often combines centralized and decentralized models. For example, countries like Romania utilize completely decentralized institutions like the National Institute of Administration to train civil servants, ensuring they are well-prepared for their roles (Christian, 2016).
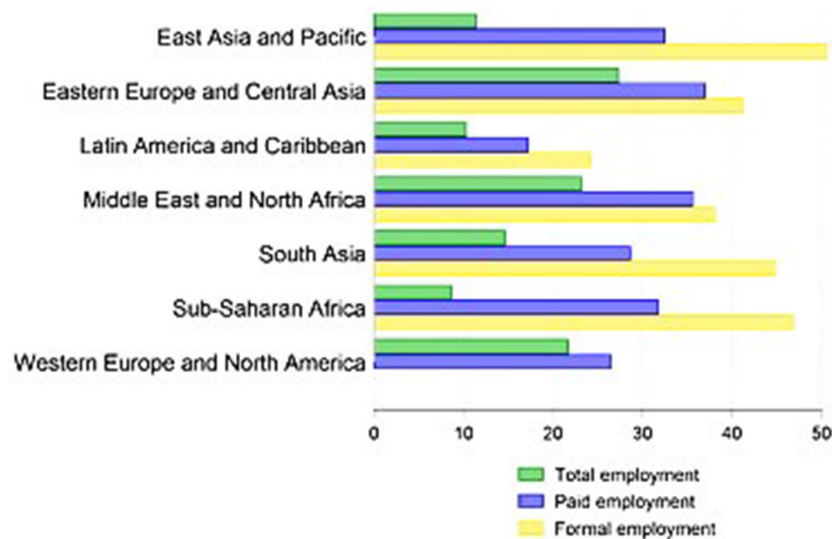


**Figure 3.** Proportion of Employment in the Public Sector
**Source:** Gindling, et al., 2020

While both African and European public sectors face unique challenges, their approaches to employee motivation differ significantly. In Africa, where public sector workers benefit from higher job security and a stronger sense of public service, financial incentives such as performance-related pay (PRP) are less common. Intrinsic motivations like job satisfaction and organizational commitment tend to drive productivity. However, the centralized and often hierarchical nature of human resource management in Africa has limited the implementation of incentive-based systems.

In contrast, European public sectors have more experience with structured incentive systems, particularly PRP. These schemes aim to promote competition and productivity by tying compensation to individual or group performance. However, the impact of such incentives varies across regions. Western European countries, where decentralized management is more common, face challenges in effectively implementing PRP systems across all levels of government.

## 2.4. European Perspective on Public Sector Workers

European citizens, unlike their African counterparts, hold varying levels of trust and regard for civil servants depending on the region. In Western Europe, civil servants are generally viewed more favorably, while in Eastern Europe, public perception tends to be less positive, as illustrated in Figure 4.

However, upon thorough examination, it becomes evident that civil servants are often viewed with significant distrust (Van de Walle et al., 2008). In Europe, this skepticism stems not only from the outcomes produced by the public sector but also from the way governmental processes are conducted.
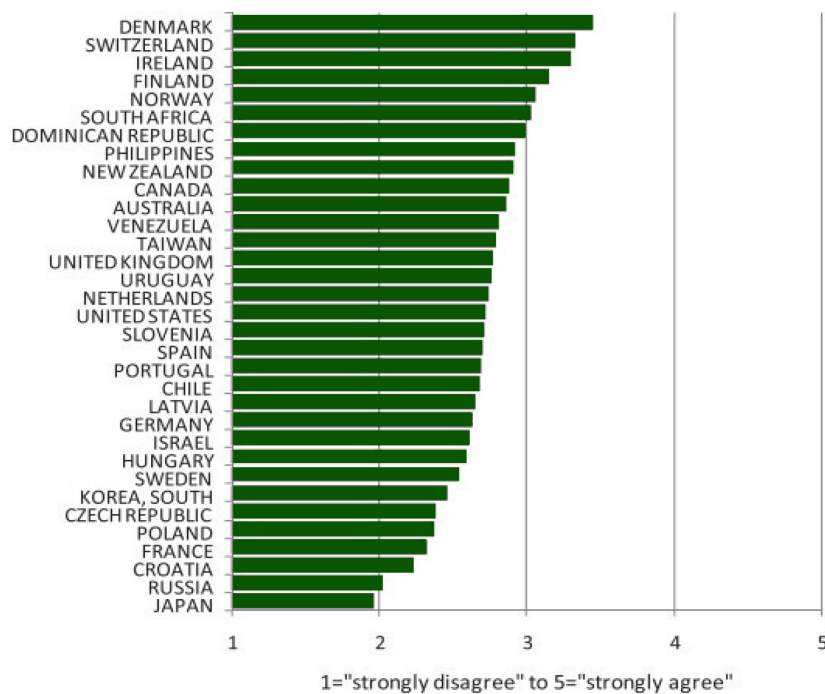
**Figure 4.** Different reactions to the statement
"Most civil servants can be trusted to act in the country's best interest" vary significantly
**Source:** Van Ryzin, 2011

## 3. ASSESSING EFFICIENCY AMONG PUBLIC SECTOR WORKERS

Public sector efficiency is often measured by how effectively resources are transformed into outcomes that serve public needs. Despite the differing public perceptions in Africa and Europe, assessing productivity is critical to improving public service delivery. Understanding how incentives—both financial and intrinsic—affect these efficiency measures is key to addressing public sector performance gaps.

### 3.1. Criteria for Assessing the Productivity of Public Sector Employees: Insights from Africa and Europe

In Africa, the lack of continent-wide standards for evaluating public sector efficiency poses challenges. Performance management systems, where they exist, rely heavily on qualitative assessments, such as surveys. Financial incentives like performance-related pay (PRP) are rare, and employee effectiveness is often assessed through broader goals like service delivery and social impact rather than individual output. These systems are primarily based on performance assessments, usually through surveys. Furthermore, productivity is viewed as the ratio of performance outcomes to expectations, which is then broken down into measurable aspects such as:

- Objectives,
- Targets,
- Standards.

In addition to these, African countries also use measurable metrics, which include:
- Key Performance Indicators, such as service delivery rates.
- Financial Metrics, like return on investment and asset return.

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Moreover, many countries incorporate global strategies, such as the Balanced Scorecard, into their evaluation methods (Fatile, 2014).

In Europe, a more standardized approach to assessing public sector efficiency exists, driven by frameworks like the UK's Office for National Statistics (ONS). These systems incorporate both quantitative and qualitative metrics, including performance-related pay schemes and quality-adjusted outputs. Incentive systems, such as PRP, have been more widely implemented in Europe, although their effectiveness varies by country and sector. However, these newer strategies don't fully replace traditional evaluation methods, such as:

- Survey Data.
- Direct Output Volume Measurement etc. (Schultz et al., 2017).

## 3.2. Factors That Influence Productivity

While Europe and Africa have different approaches to assessing productivity, it's important to note that many factors influencing public sector employees in one region often have a similar effect across both. This is particularly true when considering the elements that drive productivity. These influences can be divided into the following categories (Ali et al., 2021):

a) External Factors:
   i. Financial rewards, such as salaries and bonuses.
   ii. Structural incentives, including promotions, leisure benefits, and professional development.
b) Internal Factors:
   i. Commitment to the organization.
   ii. Job Satisfaction.
   iii. Behavioral patterns, including leadership styles, management techniques, and HR practices.
c) Cognitive Factors:
   i. Perception.
   ii. Psychological bias.

As this discussion focuses on external influences, only a brief overview of other factors is given. Public sector employees' productivity is largely shaped by internal motivators, particularly due to their strong sense of altruism. Any effective strategy aimed at improving productivity must account for these intrinsic motivators, which impact employees both at a surface level and on a deeper, more personal level. The three primary internal influences—commitment, job satisfaction, and behavioral patterns—are key to driving productivity. For instance, enhancing human resources practices can increase productivity by fostering an environment where employees feel valued and appreciated through well-executed HR strategies.

## 4. PUBLIC SECTOR EMPLOYEES' PRODUCTIVITY: THE ROLE OF INCENTIVES

The role of incentives in enhancing employee productivity within the public sector has been a long-debated topic, with different outcomes observed across continents. In European countries, the widespread implementation of performance-related pay (PRP) schemes is a common strategy, aiming to directly link compensation to employee output. These schemes are designed to inject competitiveness into the public sector, reducing complacency and improving overall efficiency. Despite their widespread adoption, the impact of these schemes varies, with most

bonuses in Europe accounting for less than 10% of base salaries for non-managerial staff and around 20% for those in managerial roles.

Conversely, Africa has seen a slower uptake of PRP schemes, with varying degrees of success in different regions. Corruption and inefficient governance continue to impede the effective implementation of financial incentives. However, a few nations, particularly in Northern and Southern Africa, are starting to adopt structured incentive systems, showing some success in boosting public sector productivity.

## 4.1. The Application of Incentives

The role of incentives in the public sector has evolved over decades in both Africa and Europe, though with markedly different outcomes. In Europe, performance-related pay (PRP) schemes have been a common tool for enhancing productivity, particularly at managerial levels. These systems tie employee compensation to measurable performance outcomes, with varying degrees of success across different sectors and countries.

In contrast, Africa has seen slower adoption of PRP systems, and where they are implemented, challenges such as corruption and inefficiency often undermine their effectiveness. Instead, African public sectors tend to rely more on intrinsic motivators, such as organizational commitment and job satisfaction, to enhance productivity. The differing cultural and economic environments in Africa often favor non-monetary incentives over structured pay schemes.

Since the early 2000s, however, many European countries have transitioned from merely discussing the use of incentives to actively implementing them. Various forms of incentive systems have been put into practice across Europe, including:
a)    Performance-Based Pay (PRP) Systems
       PRP systems have become the primary financial incentive tool in Europe's public sector, aiming to enhance productivity by linking pay to performance. These schemes introduce a competitive element to public sector work, emulating private sector models. However, their success is largely confined to managerial positions, with lower-level staff often seeing minimal benefits. In Africa, PRP systems are far less prevalent, and financial incentives are often overshadowed by institutional challenges, such as inconsistent implementation and a focus on job security rather than performance. PRP systems also aim to encourage a more flexible and open approach to compensation within the public sector (OECD, 2020). These schemes have been widely adopted across Europe, though their implementation varies by country. Some common trends include:
       ▪    PRP systems are not limited to management but encompass all levels of employees.
       ▪    PRP bonuses typically amount to less than 10% of non-managerial staff salaries and around 20% for managers.
       ▪    PRP systems can be applied on a national scale or within organizations to assess group performance.
b)    Workload-Based Compensation
       One major factor contributing to lower productivity and the movement of public sector employees to the private sector is the rising workload. As a result, the idea of designing pay systems that align with an employee's workload has gained attention. However, this approach is still in its early stages and not widely adopted, largely due to the complexities involved in pre-job evaluations.

In Africa, performance-based pay systems are also the primary method of implementing financial incentives. However, unlike in Europe, where these systems are widely accepted, the reception in Africa is mixed. Particularly in sub-Saharan regions, there has been limited effort to integrate PRP policies into national frameworks. Despite this, some countries in Northern and Southern Africa are making strides in developing structured incentive and pay systems, with a few achieving notable success.

## 5.  CONCLUSION

The comparative analysis of incentive models in African and European public sectors reveals significant regional disparities in how incentives are applied and their impact on employee productivity. European public sectors, particularly in Western Europe, have widely adopted structured performance-related pay (PRP) systems, which have proven effective at managerial levels but face challenges in decentralized institutions. In contrast, African public sectors tend to rely on intrinsic motivators such as job satisfaction and organizational commitment, with limited use of structured financial incentives due to institutional challenges.

This study demonstrates that a one-size-fits-all approach to public sector incentives is inadequate. Instead, there is a need for hybrid incentive models that combine both financial and non-financial incentives, tailored to each region's unique cultural and institutional contexts. Policymakers in African countries with stronger governance frameworks could benefit from gradually integrating structured financial rewards, while European systems might explore reinforcing intrinsic motivators to complement PRP systems, especially in decentralized settings.

**Future Research and Policy Directions:** Future research should focus on testing these hybrid incentive models in pilot programs across different sectors and regions to assess their long-term effectiveness. Moreover, policymakers should prioritize the development of context-specific incentive frameworks that align with broader public service goals. By addressing both intrinsic and extrinsic motivators, it will be possible to create a more balanced approach to enhancing public sector performance, leading to sustainable improvements in service delivery across Africa and Europe.

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# International Trade Relations of the CEFTA 2006 Countries

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**Abstract:** *The research aims to analyse the international trade relations of CEFTA-2006 countries. The research is based on secondary data obtained from the World Bank database and covers the period 2010-2022. The analysis includes key indicators of international trade, such as: (1) indicators showing the importance of foreign trade for the national economy; and (2) indicators of international trade that focus on competitiveness and the benefits of participation in international trade. The research identified a significant import dependence of the assessed group of countries, where the EU was identified also as a major trading partner. The results show that significant gains have been achieved, although international competitiveness has stagnated, which is particularly evident in the export of high-tech products. As the process of European integration intensifies, the CEFTA-2006 countries need to find more efficient ways to increase competitiveness and invigorate the convergence process, especially through reforms that could boost economic progress and further integration.*

## 1. INTRODUCTION

Affirmation of trade relations between Central and Eastern European countries and the emphasis on their pursuit of European integration began in 1992 when the members of the Višegrad Group (Czechoslovakia, Poland, and Hungary) concluded a Free Trade Agreement, which entered into force in 1993. This agreement established the Central European Free Trade Association (CEFTA), a multilateral free trade agreement aimed at liberalizing trade and providing a basis for Member States to join eventually the European Union (CEFTA, 2024). The agreement provided for the gradual elimination of tariffs on industrial products, the partial elimination of obstacles to the trade of agricultural and food products, and specific measures in the area of competition policy and some other important (economic) policies. CEFTA expanded its membership over the years, with Slovenia joining in 1996, Romania in 1997, Bulgaria in 1999, and the Republic of Croatia in 2002 (CEFTA, 2024). Membership in CEFTA was subject to several conditions, including (1) membership in the World Trade Organization or compliance with its rules; (2) a signed EU Accession Treaty or other accession document; and (3) an existing free trade agreement with other CEFTA member countries (Efremov et al., 2020).

In the early 2000s, the EU focused its activities on South-Eastern Europe, i.e. the area of the Western Balkans, and their economic and political stability became a priority. The Stabilization and Association Process (SAP) adopted in Zagreb in 2002 and the European Perspective for the Western Balkans contained in the SAP established a set of instruments and procedures necessary for achieving full EU membership for these countries, which was also recognized in these countries as a fundamental long-term economic and strategic goal (Tomljanović, 2017). Throughout the process, the importance of trade liberalization was reaffirmed, which

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was achieved in 2007 after the signing (in 2006)[4] of the Agreement on Amendments and Accession to the Central European Free Trade Agreement, i.e. CEFTA 2006.[5] The agreement aims to develop trade and general economic relations, promote the development of trade activities, raise living standards, create new and better jobs, increase productivity and achieve financial stability in accordance with the principles of market economy and trade liberalization (CEFTA, 2024).

Currently, the structure of CEFTA 2006 consists of the Western Balkan[6] countries, which are candidates and potential candidates for EU membership, and Moldova (CEFTA, 2024). The Association Agreement between Moldova and the EU entered into force in July 2016 and focused on the creation of a *deep and comprehensive* free trade area (Council of the EU, 2022). Recent data and research indicate a very difficult economic and social situation in these countries, which largely justifies their focus on deepening relations with the EU. However, the current economic, social and political instabilities severely limit the development of international trade relations and the continuation of integration processes. At the same time, special efforts should be directed to the development of trade flows in the context of liberalization and the achievement of economic growth and competitiveness. From this context, the research problem arises. Therefore, the research aims to present, analyse and critically assess the development of trade relations within CEFTA 2006 and to highlight research findings that are indisputably related to trade liberalization processes and international competitiveness of particular countries that have strategically committed to the European integration process.

The research is divided into six interrelated sections and begins with an introductory discussion explaining the topic, basic research elements and the structure of the paper. The paper continues by explaining the main theoretical issues and frameworks of the research, after which the research methodology and data are laid down. The main findings focused on the analysis of international trade flows of CEFTA 2006 countries, which also determine the fundamentals of trade and the integration path of the participating countries, are presented in section 4. A Discussion section brings a broader context of the processes of trade liberalization, competitiveness and economic convergence for the observed countries, while the paper ends with a Conclusion, which brings a comprehensive synthesis of the research.

## 2.    THEORETICAL BACKGROUND

As mentioned in the Introduction, most of the observed countries belong to the group of Western Balkan countries, with a pronounced pro-European orientation, characterized by specific stages of the integration process. The basic determinants of the EU Enlargement Policy are regulated by Article 49 of the Treaty on the Functioning of the EU (TFEU, 2012), according to which '*any European country which respects the principles set out in Article 2 of the Treaty (principles of human dignity, freedom and equality, democracy and the rule of law, etc.) and*

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[4]    Signed by: Albania, Bosnia and Herzegovina, Croatia, Bulgaria, North Macedonia, Moldova, Montenegro, Romania, Serbia and the United Nations Interim Administration Mission in Kosovo (UNMIK) on behalf of *Kosovo\**. In this article the asterisk (\*) is used in the case of Kosovo\*, as it is not officially recognised as an independent state by 46% of UN Member States and 20% of EU Member States. Nevertheless, it is a part of CEFTA 2006.

[5]    With their accession to the EU in 2007, Romania and Bulgaria left the CEFTA Agreement shortly after it entered into force. With full membership in the EU, since July 2013, Croatia also ceased to be a member of CEFTA 2006.

[6]    The *potential candidate* for accession is now only *Kosovo\**. In the meantime, all other CEFTA 2006 countries became official candidates for EU accession.

*is ready to promote them may become a member of the Union*'. In addition to the basic provisions of the TFEU, candidate and potential candidate countries must make progress in meeting the basic criteria. Except for the so-called 'zero criteria', which states that countries must be located on the European continent (Tomljanović, 2017), countries must meet the Copenhagen criteria established in 1993, which include political, legal, and economic criteria (European Commission, 2022). The political criterion implies the existence of stable institutions that enable the implementation of democracy and the rule of law and ensure the protection of minority rights and human rights. The economic criterion implies the existence of an efficient market economy that is ready to face growing competition. The legal criterion includes the commitment to adopt the *acquis communautaire* in the candidate countries, i.e. compliance with 35 chapters of the *acquis* (European Commission, 2022), which constitute the complete body of European Union law. Since 1995, the Madrid criterion ('administrative criterion') has also been introduced, which requires the adaptation of national administrative structures in order to successfully carry out the integration process (Steunenberg & Dimitrova, 2007).

Participation in the European integration processes is motivated by a wide range of economic and political motives. Mathews (2003) and Grgić and Bilas (2012) emphasize the economic benefits of improved resource allocation and competition, easier access to foreign markets, ensuring the credibility of politically difficult domestic decisions, enhancing international bargaining power, and attracting foreign aid and investment. Kandžija and Cvečić (2010) point out that inclusion in regional integration flows leads to greater competitiveness, economic growth, larger markets, economies of scale, investment incentives, and more efficient production and use of available resources. In addition to these benefits and motives for integration, the assessment of the observed countries places particular emphasis on achieving political stability.

CEFTA 2006 Member States find trade liberalization an important motive. Under the common Trade Policy, the EU works on trade agreements with 'third countries' in order to open access to new markets for EU actors and increase trade opportunities, as well as to introduce trade rules that protect EU producers from distortions of competition (European Commission, 2022). Trade liberalization covers the process of removing tariffs and non-tariff barriers to international trade and manifests itself through static and dynamic effects. Grgić and Bilas (2012) point out that static impacts must be considered through changes in resource availability. Dynamic effects, on the other hand, include increased productivity, enhanced international competition, absorption and spillovers of knowledge and technology, stimulation of investment in R&D, and increased inflows of foreign direct investment. In addition, liberalization affects consumption, income, and output by lowering prices in the domestic market. The same authors (2012) point out that domestic firms benefit significantly from liberalization by creating new markets and new opportunities to achieve international competitiveness.

Involvement in international trade flows has a positive impact on national productivity, which is an obvious indicator of economic development and improvement in economic performance (Avelini Holjevac & Vrtodušić Hrgović, 2012). The improvement of productivity also affects the competitiveness of the national economy, which is basically the ability of a country to produce goods and services that perform well in the international market under free and fair market conditions and ensure the maintenance and long-term increase of real incomes (Stanovnik & Kovačić, 2000). Furthermore, Djogo and Stanišić (2016) define competitiveness as *'the ability of a country to maintain a balance of trade, create new jobs, and ensure an increase in household incomes under free and fair market conditions. Great emphasis is placed on satisfactory levels of investment*

*without increasing public debt and taking into account environmental objectives'.* Šegota et al. (2017) view competitiveness *'as the ability of a country to achieve continuous economic growth that ultimately contributes to increasing the welfare of the population, assuming an increase in employment and a reduction and/or maintenance of a stable level of public debt. In addition to the need to increase exports, countries must also adapt to globalization trends that place a high priority on investment in research and development, increasing exports of high-tech products, and creating a favourable environment for foreign direct investment.'*

Trade liberalization, increased productivity, and international competitiveness should ultimately lead to the initiation of a convergence process in this group of countries. In the broadest sense, convergence can be defined as the systematic narrowing of development gaps over time to achieve the catching-up process (catching up with the level of development of more advanced countries/regions) (Bilas, 2005), manifested in a dynamic equilibrium[7] of GDP *per capita* convergence, synchronization of business cycles, and ensuring compliance with the assumptions of the optimal currency area[8] (Drastichová, 2012).

## 3. METHODOLOGY AND DATA

The analysis covers the group of CEFTA 2006 countries, which, due to the size of the market and the number of inhabitants, belong to the group of small open economies that are dependent on trends in the international market. Depending on the availability of data, the study covers the period from 2010 to 2022. The international trade position of the selected countries was analysed based on key trade indicators. The indicators are divided into (1) indicators describing the importance of international trade for the national economy and (2) other indicators analyzing countries' benefits from international trade and their success in achieving international competitiveness. The fundament for collecting relevant data and calculating the indicators was the World Bank statistics portal.

The first group consists of indicators that describe the importance of foreign trade to the national economy. Within this group of indicators, the following were analyzed: (1) share of exports in GDP of selected countries and (2) share of imports in GDP of selected countries, (3) balance of foreign trade, (4) coverage of imports by exports and (5) openness of trade.

Andrijanić (2005) defines the foreign trade balance as the difference between exports and imports, which can be represented by the simple equation: X – M. Where, X is Total Exports, while M denotes Total Imports. In this case, the foreign trade balance can be in a surplus, when exports are greater than imports, i.e. in a deficit, when exports are smaller than imports.

Lovrinčević and Mikulić (2000) define the trade openness indicator as the share of international trade in GDP. At the same time, this indicator can be represented by the equation:

$$(X + M) / GDP * 100 \qquad (1)$$

Where X stands for Total Exports, M for Total Imports, and GDP for Gross Domestic Product.

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[7]     Long-term equilibrium with a stable per capita income or an increase in the rate of technological progress.

[8]     Vujčić (2003) and Bilas (2005) identify mobility of factors of production (labour), similarity of inflation rates, flexibility of prices and wages, openness of trade and cross-border trade, interest rates, fiscal integration, and harmonization of business cycles as preconditions for the optimal currency area.

The degree of coverage of imports by exports is expressed by the equation r = X / M *100, where *r* is the degree of coverage of imports by exports, X represents Total Exports, and M is Total Imports.

In the second group, the focus was on terms of trade and exports of high-tech products. The benefits that each country derives from international trade are expressed, among other things, by the *Terms of Trade*, which Blatmann (2007) defines as the ratio of export and import prices, which can be represented as: ToT = px / pm. Where *ToT* are the Terms of Trade, *px* are export prices, and *pm* are import prices. The evolution of the index is observed in comparison with the base year, where an increase in the index level means the realization of gains from foreign trade, while its decrease indicates the country's losses in international trade relations. High technology exports (% of manufactured exports) evaluate the ability of the observed countries to achieve international competitiveness by placing high technology products on the international markets.

The limitations of the study stem from the incomplete data needed to comprehend the time series, which can diminish the validity of sound conclusions.

## 4. RESEARCH RESULTS

The data in Table 1. indicate a relatively low (although increasing) share of exports in the GDP of the observed countries, ranging from 37.4% to 74.89% in 2022, with the highest value for Northern Macedonia. These data suggest that the production and structural insufficiencies of this group of countries, usually much less competitive than most of the EU countries, might be improving their position on the international market. Relatively, the best progress in the share has been achieved in Serbia (99%) and North Macedonia (88%), while the most modest progress was achieved in the case of Albania (33%).

**Table 1.** Share of exports in GDP of selected countries in the period 2010-2022 (%)

| Country \ year | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Albania** | 27.98 | 29.24 | 28.94 | 28.92 | 28.21 | 27.27 | 28.98 | 31.57 | 31.57 | 31.30 | 22.66 | 31.31 | 37.40 |
| **Bosnia and Herzegovina** | 29.70 | 32.04 | 32.35 | 33.74 | 33.99 | 35.11 | 35.91 | 40.32 | 41.98 | 40.04 | 34.18 | 42.15 | 48.25 |
| **North Macedonia** | 39.79 | 47.12 | 45.37 | 43.40 | 47.66 | 48.74 | 50.66 | 55.15 | 60.38 | 62.41 | 57.77 | 65.44 | 74.89 |
| **Moldova** | 27.83 | 32.54 | 31.13 | 32.09 | 31.53 | 31.81 | 32.87 | 32.53 | 30.70 | 31.19 | 27.91 | 30.65 | 41.24 |
| **Montenegro** | 37.04 | 42.35 | 43.67 | 41.34 | 40.14 | 42.12 | 40.60 | 41.06 | 42.88 | 43.85 | 26.00 | 42.83 | 51.53 |
| **Serbia** | 32.26 | 33.00 | 35.84 | 39.85 | 42.08 | 45.18 | 48.52 | 50.47 | 50.43 | 51.01 | 48.22 | 54.89 | 63.84 |
| *Kosovo** | 21.67 | 24.95 | 24.52 | 23.00 | 23.53 | 22.45 | 23.83 | 27.33 | 29.05 | 29.31 | 21.70 | 33.41 | 38.45 |

**Source:** developed by authors based on World Bank, 2024a

**Table 2.** Share of imports in GDP of selected countries in the period 2010-2022 (%)

| Country \ year | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Albania** | 48.56 | 51.98 | 47.57 | 46.96 | 47.19 | 44.53 | 45.83 | 46.62 | 45.24 | 44.97 | 37.17 | 44.71 | 47.75 |
| **Bosnia and Herzegovina** | 51.27 | 55.80 | 55.79 | 54.19 | 56.56 | 53.18 | 52.34 | 56.32 | 56.45 | 54.48 | 47.93 | 53.91 | 62.04 |
| **North Macedonia** | 58.09 | 66.07 | 66.84 | 61.46 | 64.88 | 64.96 | 65.52 | 68.99 | 72.84 | 76.17 | 70.47 | 81.28 | 95.92 |
| **Moldova** | 60.11 | 66.08 | 65.17 | 63.59 | 62.70 | 57.16 | 56.14 | 56.09 | 56.75 | 56.44 | 51.35 | 57.82 | 69.49 |
| **Montenegro** | 62.74 | 64.31 | 68.09 | 61.43 | 59.98 | 60.57 | 63.07 | 64.50 | 66.73 | 65.00 | 61.01 | 62.20 | 74.37 |
| **Serbia** | 44.48 | 45.81 | 49.63 | 48.07 | 50.15 | 52.22 | 53.34 | 57.06 | 59.06 | 60.94 | 56.50 | 62.88 | 74.81 |
| *Kosovo** | 60.51 | 61.20 | 56.84 | 52.10 | 53.55 | 51.57 | 51.19 | 53.08 | 57.26 | 56.44 | 53.91 | 65.23 | 71.06 |

**Source:** developed by authors based on World Bank, 2024b

Data in Table 2. shows that for this group of countries, a higher GDP share is related to import activities. These results could be induced by inadequacies in their own markets and a higher need to meet the demand for foreign products, especially in North Macedonia (96%), but much less in the case of Albania (48%). Moreover, the shares have not changed drastically during the observed period, except for Serbia and North Macedonia. Taking into account both, export and import, these two countries have experienced a significant change during the observed period.

The continuous emphasis on import activities led to a constant materialization of the external deficit for the observed countries. The data from Graph 1. shows that Serbia has the largest deficit (in absolute values) among the observed countries in 2022, followed by Moldova and Bosnia and Herzegovina.
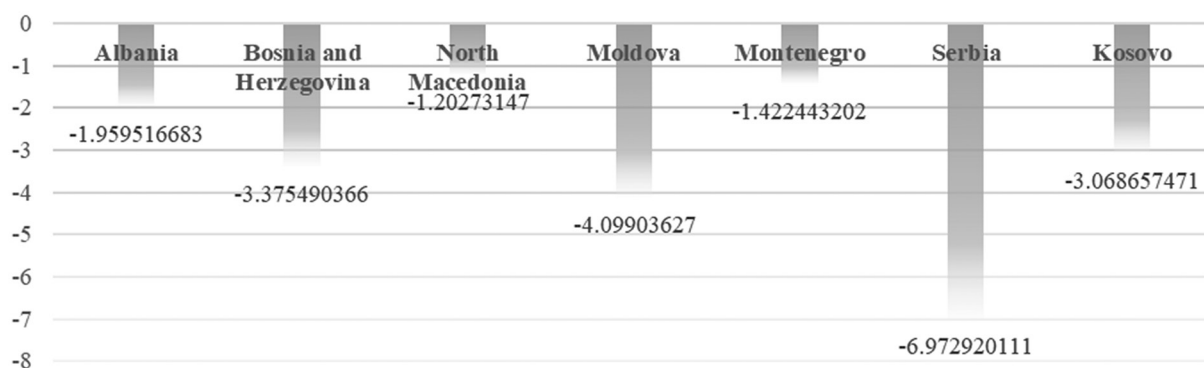


**Graph 1.** Foreign trade balance of observed countries in 2022 (in billions of US dollars)
**Source:** developed by authors based on World Bank, 2024c, 2024d

The data in Table 3. indicates the degree of import coverage by exports. Although it is below 100 for all observed countries (which again suggests a trade deficit), the degree varies from 54% in Kosovo* and 59% in Moldova up to 90.7% in North Macedonia and 85% in Serbia. During the observed period Kosovo*, Albania and Bosnia and Herzegovina improved the coverage the most.

**Table 3.** Coverage of imports by exports in selected countries in the period 2010 - 2022 (%)

| Country \ year | 2021 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albania | 57.61 | 56.26 | 60.83 | 61.58 | 59.78 | 61.23 | 63.23 | 67.71 | 69.79 | 69.60 | 60.95 | 70.03 | 78.31 |
| Bosnia and Herzegovina | 57.92 | 57.41 | 57.98 | 62.27 | 60.09 | 66.03 | 68.61 | 71.60 | 74.38 | 73.50 | 71.32 | 78.19 | 77.77 |
| North Macedonia | 93.34 | 86.14 | 85.56 | 92.26 | 85.57 | 88.11 | 87.90 | 94.73 | 93.09 | 85.41 | 79.35 | 87.62 | 90.76 |
| Moldova | 46.30 | 49.25 | 47.77 | 50.46 | 50.28 | 55.65 | 58.55 | 58.00 | 54.09 | 55.26 | 54.36 | 53.01 | 59.34 |
| Montenegro | 59.05 | 65.85 | 64.14 | 67.30 | 66.92 | 69.54 | 64.37 | 63.65 | 64.25 | 67.46 | 42.61 | 68.87 | 69.30 |
| Serbia | 72.52 | 72.05 | 72.23 | 82.91 | 83.90 | 86.52 | 90.95 | 88.46 | 85.40 | 83.70 | 85.34 | 87.29 | 85.34 |
| *Kosovo** | 35.81 | 40.77 | 43.14 | 44.15 | 43.94 | 43.54 | 46.55 | 51.48 | 50.74 | 51.94 | 40.24 | 51.22 | 54.11 |

**Source:** developed by authors based on World Bank, 2024c, 2024d

The data in Table 4. indicates a high degree of trade openness among the observed countries, ranging from 85.15% (Albania) to 170.82% (North Macedonia). A further insight suggests that all observed countries increased their level of trade openness, especially after 2020, which was very influenced by the COVID-19 crisis. Lovrinčević and Mikulić (2000) point out that the tendencies to increase the level of trade openness can be identified to some extent with the increasing liberalization of international trade, but this is still a broader concept.

**Table 4.** Level of trade openness of selected countries in the period 2010 - 2022 (%)

| Country \ year | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albania | 76.54 | 81.22 | 76.51 | 75.87 | 75.41 | 71.80 | 74.81 | 78.19 | 76.81 | 76.28 | 59.83 | 76.02 | 85.15 |
| Bosnia and Herzegovina | 80.97 | 87.84 | 88.15 | 87.93 | 90.55 | 88.29 | 88.24 | 96.65 | 98.43 | 94.52 | 82.11 | 96.07 | 110.28 |
| North Macedonia | 97.88 | 113.19 | 112.21 | 104.86 | 112.54 | 113.70 | 116.19 | 124.14 | 133.22 | 138.58 | 128.24 | 146.72 | 170.82 |
| Moldova | 87.94 | 98.62 | 96.31 | 95.69 | 94.23 | 88.97 | 89.00 | 88.62 | 87.45 | 87.63 | 79.27 | 88.47 | 110.73 |
| Montenegro | 99.78 | 106.66 | 111.77 | 102.77 | 100.13 | 102.69 | 103.67 | 105.55 | 109.61 | 108.84 | 87.01 | 105.03 | 125.90 |
| Serbia | 76.73 | 78.81 | 85.47 | 87.92 | 92.23 | 97.40 | 101.86 | 107.53 | 109.49 | 111.95 | 104.72 | 117.77 | 138.65 |
| *Kosovo\** | 82.18 | 86.15 | 81.36 | 75.10 | 77.08 | 74.02 | 75.02 | 80.41 | 86.32 | 85.75 | 75.61 | 98.64 | 109.51 |

**Source:** developed by authors based on World Bank, 2024e

The data from Table 5. shows the trends in the *net barter* Terms of Trade of selected countries, indicating changes in the relation between import and export prices. Since 2015, more imports can be obtained with the same amount of exports, especially in the case of Bosnia and Herzegovina and Moldova. North Macedonia and partially Serbia experienced a slightly lower index after 2015, suggesting some losses in international competitiveness.

**Table 5.** Net barter *Terms of Trade Index* (2015 = 100) for selected countries in the period 2010 - 2021

| Country \ year | *2000* | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albania | *108.14* | 102.27 | 101.88 | 103.33 | 102.86 | 101.14 | 100 | 101.08 | 104.07 | 104.15 | 103.97 | 103.93 | 103.72 |
| Bosnia and Herzegovina | *95.69* | 99.02 | 99.17 | 96.74 | 96.09 | 96.27 | 100 | 100.49 | 100.62 | 102.35 | 102.29 | 103.42 | 111.70 |
| North Macedonia | *102.63* | 95.39 | 88.79 | 89.49 | 91.50 | 93.87 | 100 | 99.41 | 98.03 | 96.98 | 97.15 | 96.45 | 87.86 |
| Moldova | *138.13* | 103.82 | 101.70 | 99.64 | 98.13 | 94.58 | 100 | 102.81 | 102.68 | 98.90 | 98.31 | 112.55 | 107.97 |
| Serbia | *n/a* | 97.88 | 97.07 | 96.64 | 95.95 | 95.92 | 100 | 101.54 | 99.53 | 97.79 | 98.92 | 100.91 | 97.18 |

**Note:** Data not available for Kosovo\* and Montenegro

**Source:** developed by authors based on World Bank, 2024f

Table 6. shows the level of international competitiveness of the observed countries presented by the value of high-technology exports. Available data indicates that the highest values were achieved in Montenegro, while the lowest were for Albania. However, data for Serbia, the biggest economy in the region is missing. Generally, CEFTA 2006 countries are strongly lagging behind the EU average (17.6%). This situation is certainly influenced by the lack of investment in research and development in these countries, which is also lagging behind the EU average.

**Table 6.** High-technology exports in selected countries in the period 2010 - 2022 (% of manufactured exports)

| Country \ year | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albania | 1.46 | 1.02 | 0.92 | 0.89 | 0.26 | 1.63 | 0.78 | 0.09 | 0.04 | 0.13 | 0.29 | 0.42 | 0.06 |
| Bosnia and Herzegovina | 3.54 | 2.83 | 3.27 | 2.62 | 2.40 | 2.50 | 2.96 | 2.73 | 5.44 | 5.25 | 5.27 | 4.61 | 5.32 |
| North Macedonia | 3.56 | 4.11 | 4.07 | 3.78 | 3.30 | 3.37 | 2.08 | 3.98 | 4.05 | 4.22 | 4.18 | 4.03 | 3.99 |
| Moldova | 9.70 | 7.42 | 5.13 | 2.77 | 5.34 | 4.61 | 3.48 | 5.39 | 2.52 | 2.96 | 2.24 | 2.24 | 2.14 |
| Montenegro | 10.34 | 8.25 | 10.78 | 7.90 | 14.62 | 12.77 | 5.56 | 4.24 | 3.15 | 6.89 | 7.57 | 9.44 | 8.21 |

**Note:** Data not available for Kosovo\* and Serbia

**Source:** developed by authors based on World Bank, 2024g

Regarding trade partners, observed countries are largely oriented towards trade (both imports and exports) with the EU due to the signed trade agreements and their aspirations to achieve full membership in the EU, in the future.

## 5. DISCUSSION

The indicators of the importance of foreign trade for the national economy undoubtedly point to the high import orientation of the observed countries, which is a direct consequence of the size of the countries and their structural characteristics. These results confirm the generally accepted thesis of the crucial importance of foreign trade for the economies of small and 'open' countries. Which, due to a lack of supply and resources in the domestic market, have to meet their own needs through imports from abroad. Also, the tendency to increase the degree of trade openness until the onset of the COVID-19 crisis indicates their increasing involvement in international trade flows, which is one of the crucial steps to overcoming existing economic and social challenges and for their further involvement in the European integration processes.

The trade orientation of this group of countries toward the EU is the result of previous agreements and efforts to become full members of the EU. According to the European Commission (2022), the EU regulates its relations with the Western Balkan countries under the Stabilization and Association Agreement, which is one of the stages on the way to full EU membership. On the other hand, trade relations with Moldova are regulated under the Association Agreement. Tomljanović (2017) points out that the Association Agreement is a *preliminary stage of establishing a free trade area or customs union through regulated and pre-formulated measures and instruments*, with the first forms of such agreements concluded with Central and Eastern European countries in the process of EU accession (Kandžija & Cvečić, 2008).

Besides trade deficits, most CEFTA 2006 countries have experienced price-related losses from participating in international trade flows. However, the observed countries are faced with difficulties in national production systems, their economic structures, political and security situations and constraints arising from international financial relations. All of those represent important challenges for their future. The data also suggest that the observed countries have had questionable success in increasing their presence in international markets through the share of high-tech products in exports. These difficulties in achieving international competitiveness are a consequence of weaker innovation systems, which limit the process of economic convergence, which is crucial for achieving economic growth and further progress in the integration process (Kandžija & Cvečić, 2010).

Despite all these difficulties and limitations, the data in Table 7. suggest that the observed countries had mostly stable GDP growth rates in the pre-COVID-19 crisis period. Except for 2020, which strongly influenced all, and especially Montenegro (-15.3% drop) and Moldova (-8.28%), in most other years CEFTA 2006 countries had higher growth rates compared to the EU average.

**Table 7.** Levels of annual GDP growth in selected countries in the period 2010-2022 (%)

| Country \ year | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Albania | 3.71 | 2.55 | 1.42 | 1.00 | 1.77 | 2.22 | 3.31 | 3.80 | 4.02 | 2.09 | -3.30 | 8.91 | 4.86 |
| Bosnia and Herzegovina | 0.87 | 0.96 | -0.82 | 2.35 | 1.15 | 4.31 | 3.24 | 3.24 | 3.83 | 2.89 | -3.02 | 7.39 | 4.11 |
| North Macedonia | 3.36 | 2.34 | -0.46 | 2.93 | 3.63 | 3.86 | 2.85 | 1.08 | 2.88 | 3.91 | -6.11 | 5.51 | 2.15 |
| Moldova | 7.10 | 5.82 | -0.59 | 9.04 | 5.00 | -0.34 | 4.65 | 4.18 | 4.08 | 3.55 | -8.28 | 13.93 | -5.02 |
| Montenegro | 2.73 | 3.22 | -2.72 | 3.55 | 1.78 | 3.39 | 2.95 | 4.72 | 5.07 | 4.06 | -15,3 | 13.04 | 6.41 |
| Serbia | 0.73 | 2.04 | -0.68 | 2.89 | -1.59 | 1.81 | 3.34 | 2.10 | 4.50 | 4.33 | -0.90 | 7.73 | 2.55 |
| *Kosovo** | 4.94 | 6.32 | 1.71 | 5.34 | 3.35 | 5.92 | 5.57 | 4.83 | 3.41 | 4.76 | -5.34 | 10.75 | 5.22 |
| EU average | **2.22** | **1.90** | **-0.70** | **-0.08** | **1.60** | **2.31** | **1.97** | **2.85** | **2.07** | **1.81** | **-5.65** | **6.01** | **3.45** |

**Source:** developed by authors based on World Bank, 2024h

Moreover, the data in Table 8. show that the observed countries have increased their employment levels compared to the beginning of the period. The greatest progress can be seen in the case of Moldova, which has surpassed the EU average, while the values in Serbia and Albania are only slightly below the European average.

**Table 8.** Employment to population rate** (%) in selected countries in the period 2010-2022

| Country \ year | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Albania** | 47.42 | 51.86 | 49.37 | 44.10 | 43.78 | 45.96 | 48.47 | 50.15 | 52.01 | 53.39 | 50.00 | 51.34 | 53.30 |
| **Bosnia and Herzegovina** | 33.22 | 32.83 | 32.89 | 32.85 | 33.53 | 33.49 | 34.44 | 36.71 | 37.55 | 39.66 | 39.37 | 42.44 | 43.84 |
| **North Macedonia** | 35.97 | 37.84 | 37.85 | 39.43 | 39.92 | 40.74 | 41.74 | 42.61 | 43.19 | 45.67 | 45.44 | 45.58 | 45.35 |
| **Moldova** | 61.49 | 62.66 | 63.37 | 64.02 | 68.27 | 68.96 | 68.80 | 67.22 | 66.22 | 68.29 | 68.84 | 71.94 | 71.87 |
| **Montenegro** | 39.20 | 39.11 | 40.13 | 40.29 | 43.20 | 44.30 | 44.85 | 45.88 | 47.50 | 48.73 | 43.81 | 45.51 | 47.69 |
| **Serbia** | 40.15 | 38.37 | 38.20 | 39.96 | 41.90 | 42.47 | 45.23 | 46.76 | 47.65 | 49.13 | 49.44 | 52.14 | 54.01 |
| **EU average** | 51.04 | 51.00 | 50.68 | 50.43 | 50.73 | 51.12 | 51.82 | 52.55 | 53.11 | 53.57 | 52.59 | 52.98 | 54.03 |

**Notes:** Data not available for Kosovo*; ** age 15+ (modeled ILO estimate)

**Source:** developed by authors based on World Bank, 2024i

## 6. CONCLUSION

The paper analyzes relevant international trade indicators of the CEFTA 2006 countries. Besides the trade trends, it is important to notice that the observed countries are at a significantly lower level of development than the EU average and therefore there is a need to build stronger trade and economic relations with the EU, which is considered their main trade and economic partner. In terms of trade flows, CEFTA 2006 countries share a common characteristic of small open economies. Indeed, it is of great importance for their national economy to enable trade with other countries, as they also have high import dependence levels. This presumes the existence of certain inadequacies of national markets and the limitations of their own domestic supplies. In the process of joining the European Union, the observed countries, under the conditions of general market liberalization, must create the conditions for increasing productivity, achieving competitiveness and initiating convergence processes. Especially through profound economic and social reforms and focusing on modern 'smart' sources of economic growth. The impetus for implementing reforms as quickly as possible should also come from the need to ensure economic recovery from the COVID-19 crisis. In addition to a focused analysis of trade flows, the paper presents a synthesis of the key indicators of international trade and the potential impact on competitiveness and/or economic progress. The scientific contribution of the research conducted stems from all of the above. Future research should focus on examining the trends in trade relations of the observed countries in the context of the COVID-19 crisis and the impact of the crisis on their macroeconomic performances. Special focus should be placed on achievement of the international competitiveness and sustainability.

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# The Minimum Vital Income Determination: The Importance and the Effects on the Albanian Economy

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**Abstract:** *The paper aims to analyze and determine the factors that affect the minimum vital income in Albania, as well as the importance in the social-economy life. The paper will conduct research on different methods of determining the minimum vital income and the formula for calculating it. The minimum vital income is a legal norm that originates from the constitutional rights of citizens. In the formulation of the vital minimum, the objective of ensuring the well-being of the individual must be taken into consideration and evaluated following the concept of human dignity provided for in the Constitution, in such a way that the individual, in addition to a dignified life, is given access to at least minimum in cultural, social and political life.*

*Hence, the paper will analyze the main indicators; it will give a comparison between the minimum vital income and wage, as well as, it will determine the value of the minimum vital income for Albania, based on the chosen formula (research on international literature and institutions). At the end, the research will conclude with the importance of setting a minimum vital income in Albania, as a way for overcoming the poverty level.*

## 1. INTRODUCTION

Albania is the only country in Europe and in the Western Balkans that has not adopted the Vital Minimum Law, which guarantees the minimum income necessary for every Albanian citizen to live.

The vital minimum is a legal norm that originates from the constitutional rights of the citizens. The objective of ensuring the well-being of the individual must be taken into consideration and evaluated following the concept of human dignity provided in the Constitution. It has to be developed in such a way that the individual has the right to enjoy a dignified life, complemented by access to cultural, social, and political life.

The lack of a specified amount of Minimum Vital Income makes the Albanian Government part of the group of countries that cannot effectively guarantee or ensure the basic livelihood resources for their citizens. The Albanian Constitutional Principles and the basis of the Albanian state are: - the dignity of every human being, human rights, freedom of speech and social justice (Article 3 of the Constitution of Republic of Albania, 1998).

In our country, there is a lack of a clear and precise definition of the vital minimum. This will affect the social protection legislation and social protection state policies, especially in the clear definition of the purpose of these policies. Government investments on the other hand, such as education, public health and employment policies, which are considered to be the policies that have the most impact on poverty alleviation, have not been increased. On the contrary, the

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level of poverty is at the highest level in the region. Today, about half of the population of Albania (49%) are at risk of poverty or live with a very low income (UN Country Report for Albania, 2020).

From various studies, the living minimum is considered a necessary payment to enable human survival level, based on the real cost of living. It includes even free participation in the social and cultural life of the country. So, it has to guarantee the citizens, in terms of securing the cost of living and the means of living (Pla & Gambau-Suelves, 2020).

Based on the above description, the government has to regulate the way of providing the vital minimum, to guarantee necessary social protection for all vulnerable citizens, who cannot ensure the fulfillment of basic vital needs, due to their limited social and economic opportunities.

The objective of the paper is to address the need for setting the Minimum Vital Income by Law, by analysing and addressing some important issues, such as:
I. administration and operation for the first time in Albania of a living minimum scheme;
II. the provision of simple and transparent procedures for determining the monetary value of the vital minimum;
III. defining the duties and roles of all the institutions involved, such as the ministries responsible for social issues and public finances, the Council of Ministers, INSTAT, etc.

## 2. EVIDENCE FROM ALBANIA AND WESTERN BALKAN COUNTRIES

The study will further promote discussions on the adoption of the Living Minimum Law in Albania and the construction of its scheme. In the context of the need to build a European pillar of social rights, there have been many efforts by European countries, to guarantee a certain level of dignity among Albanian citizens. Specifically, recently there have been some concrete initiatives from the European Union to strengthen and modernize the protection and social inclusion systems.

In May 2021, the European Commission presented the Action Plan related to social rights. This action plan envisages the adoption of an EU Council recommendation on minimum income in 2022, emphasizing that anyone with insufficient income has the right to a minimum income to guarantee a life of dignity. Based on the International Convention on Economic and Social Rights and the European Social Charter, all the states assume the obligation to respect, protect and guarantee the economic and social rights of their citizens (European Commission, 2021).

The minimum income should be considered a barrier to guarantee an "absolute minimum value necessary for a dignified life". The government must undertake the obligation to guarantee the fulfillment of minimum vital levels of rights, regardless of their level of economic development.

In England, there is a sanctioned national subsistence minimum, while Italy and Spain calculate the subsistence minimum based on the cost of living for a food basket calculated based on the FAO database (FAOLEX Database, 2021). In the United States, the poverty line is updated annually by the Census Bureau. In Germany, the government classifies an individual as being at risk of falling into poverty if their income is less than 60% of the national average income (Frazer & Marlier, 2016; Census Bureau, 2018; Pla and Gambau-Suelves, 2020; OECD, 2022; United Kingdom Census Bureau, 2023).

The legislation of European countries deals with two parallel elements that complement each other:

– First, a vital minimum level defined in concrete figures by law or other sub-legal act which is seen as a guarantee for citizens and as an inviolable poverty line

– Secondly, to ensure that this reference does not remain only sanctioned in the legal act. The legal act has to be monitored and a series of legal mechanisms, variable and continuous has to be applied. The governments are obliged to measure the effects on each citizen of the respective country and they have to regulate/improve the schemes they choose to apply (European Commission, 2021).

The determination of the official indicator of the vital minimum has become necessary for the implementation of the recommendations of international organizations, such as the International Labor Organization (ILO), the International Monetary Fund (IMF) and the World Bank. Therefore, in Albania, it is necessary to determine by law the obligation to calculate the minimum living wage and to charge the responsible institutions with this task, to reflect it in the legislation. Furthermore, this indicator should be indexed every year and should be used as a basis level for the drafting of Social Policies for each level (UN Country Report for Albania, 2020).

Regarding the detailing in the exact numerical value of this minimum, due to the dynamics of its change, which is related to the change in prices, living costs, and many elements of daily consumption, the sanctioning of this value, with law, would be inconvenient. Therefore, based on the Institute of Statistics Studies (2022), the paper proposes that the Council of Ministers should be the government body responsible for the determination of the vital minimum.

The challenges that countries have to face concerning the poverty line are not enough to define a living minimum level. This level of income should be accessible and possible for everyone. Once the minimum living standard is sanctioned with a legal norm, then the state/government should regulate the cooperation between different public institutions affected by the law of minimum living wage. The government must budget and finance the bill to enable full and effective implementation of this standard among citizens and families (Frazer & Marlier, 2016).

Therefore, in Albania, the sanctioning of a vital minimum as above, requires the necessary and corresponding changes in existing legal acts, mainly in the social legislation.

By drafting these policies, the Albanian government must take into account the standards of the International Convention on Economic and Social Rights and the European Social Charter and also, evaluate the approach with the standards of the European Union, as part of the European integration process (International Covenant on Economic, Social and Cultural Rights, 1976; People's Advocate Report, 2020).

Hence, by adopting the minimum vital income by law, Albania will:
1. increase the security of legal incomes of the families and individuals in need;
2. reduce the risk that individuals below the vital minimum threshold will fall prey to trafficking and organized crime due to their vulnerability to ensuring the minimum income of life;
3. increase the number of births, supporting families in need, improving the educational and health indicators of people, etc.

## 3.  EMPIRICAL FINDINGS FROM REPORTS

Starting in 2017, the Institute of Statistics in Albania has organized the "Survey on the level of income that derives indicators of poverty". The main indicators that were taken as the basis for these calculations are:

1.  The level of risk of being poor shows the percentage of people living in households where the equivalent disposable income is below the risk of being poor. The at-risk-of-poverty threshold represents the lowest annual disposable income for a person not to be considered poor. The limit of the risk of being poor is set at 60% of the median equivalent disposable income for all families.

2.  Material Deprivation, shows the level of living of the population by the degree of material deprivation. Severely materially deprived persons are those living in households that cannot financially cope with at least four of the nine categories of material deprivation related to assets, housing conditions, or financial aspects.
    Below are the categories of material deprivation:
    i.      Delays in loan or rent payments for the main residence, expenses for basic services, installment purchases or other payments of loans taken;
    ii.     Inability to afford a week's annual vacation away from home;
    iii.    Inability to afford a meal of meat, chicken, fish (or the equivalent for vegetarians) once every two days;
    iv.     The inability to afford an unforeseen financial expense worth 000 new lek;
    v.      Financial inability to afford a telephone (including mobile phone);
    vi.     The financial impossibility of having a color TV;
    vii.    Financial impossibility of having a washing machine;
    viii.   Financial inability to have a car;
    ix.     The family's financial inability to keep the house adequately warm.

3.  Intensity of family employment. Very low employment intensity refers to the situation of persons in the family where no one works or works very little. This means that family members at working age are working only 20% or less of the total number of months they can work during the reference period (INSTAT, 2022).

Below are the poverty indicators published by EUROSTAT until 2020. The data for European countries are until 2021 and for Albania until 2020. According to the EUROSTAT (2020, 2021) the two indicators that are taken for reference are:

1.  Children under 18 years are at the risk of poverty and social exclusion.
2.  Other individuals are at risk of poverty and social exclusion.

Based on EUROSTAT data, Albania ranks first in Europe as well as in the region with the highest risk of poverty and social exclusion for people under 18 years of age. For children under 18, the poverty level in 2019 and 2020 was 53.9 % and 51%, respectively. As for the adults who according to EUROSTAT are affected by poverty, in 2019 and 2020 it was 50.8 % and 46.2%, respectively.

These data show that the level of poverty in the country remains a very serious and endemic problem, which requires bold policies to change the situation and alleviate poverty.

In these conditions, the vital minimum should become a main part of the national system of social protection and health, reflecting the needs of individuals and families not only for food but also for other human development activities. The treatment of the vital minimum should not be

seen as a burden on the economy and the State budget or an obstacle to economic development but as a factor of economic and social development.

Summarizing, during the last 33 years several analyses/studies have been carried out on this issue. In Albania in the last years of the communist regime (1989), the minimum living wage was calculated at 450 Albanian Lek per family per month. After the fall of communism in 1990, the first study to determine the living minimum was undertaken in 1991 by the Ministry of Economy and the Institute of Economic Studies. The new value resulted in 870 Albanian Lek per family. The last institutional effort carried out to calculate the living minimum is that of the year 2001 from the Ministry of Social Welfare and Youth, where the living minimum was calculated at 7,975 Albanian Lek per month per capita. Since then, the only institutional estimates are those of INSTAT (National Institute of Statistics) for the poverty line per capita, which was set at ALL 4,891 (2002); 5,272 ALL (2005); 5,722 ALL (2008) and 6,047 ALL (2012) (Ministry of Economy and Finance, 2015).
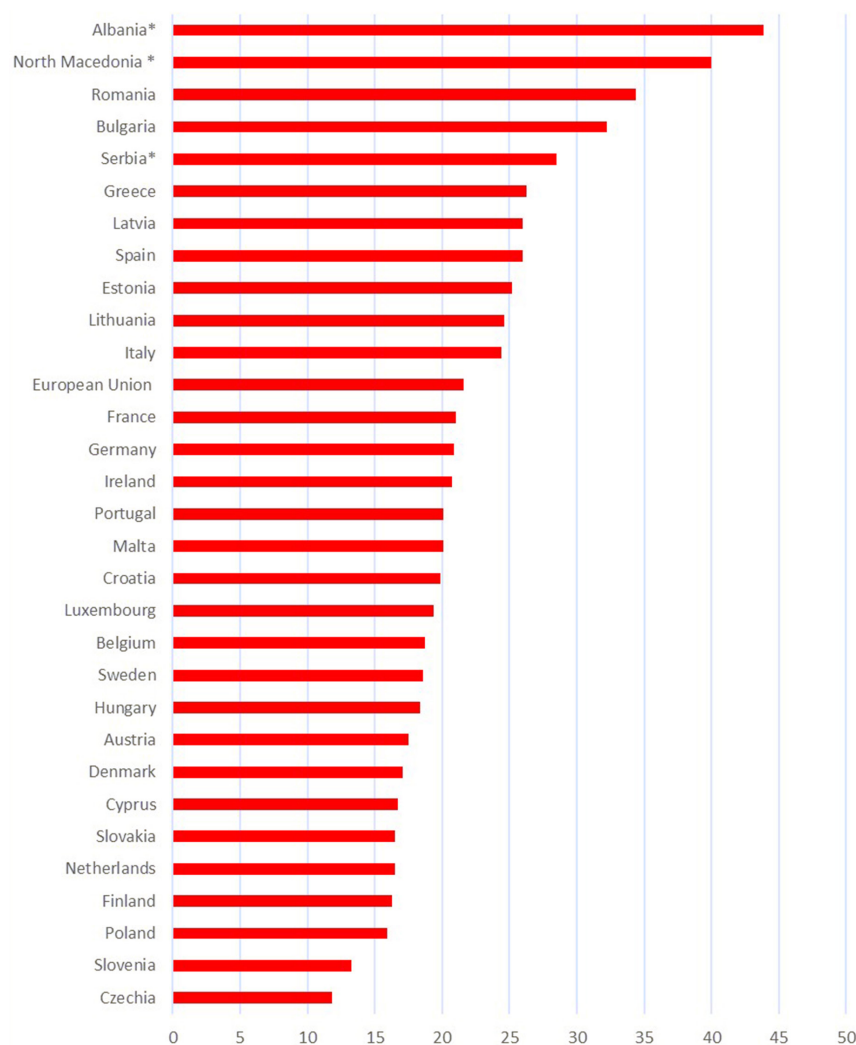


**Figure 1.** Percentage of poverty in Europe and Balkan Countries
**Source:** EUROSTAT, 2021

Referring to the most complete study on the Living Minimum Level financed by the Ombudsman Office in 2020, showed that the Living Minimum per capita in Albania in the year 2015 turned out to be 16,000 ALL per month (7,089 ALL per month for food expenses and 8,913 ALL per month for non-food expenses).

In contrast to other studies on the level of the living minimum, the value determined by this study also takes into consideration social aspects and consumption trends in our country to ensure a living minimum as suitable as possible. By indexing this value of the vital minimum, it turns out that according to the study of the Ombudsman Office, the vital minimum level in the year 2023 should be: 18,800 ALL per month per person.

**Table 1.** Statistics on Minimum Vital Income in WB6 Countries

| Country | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|
| Montenegro | - | 148 € | 152 € | 157 € | 160 € | 175 € | 189 € | 188 € | 196 € |
| Serbia | - | 121€ | 121 € | 119 € | 122 € | 127 € | 137 € | 164 € | 187 € |
| North Macedonia | 91 € | 95 € | 97 € | 106 € | 112 € | 122 € | 131 € | 136 € | 149 € |
| Albania | - | - | - | - | - | 88 € | 100 € | 112 € | 126 € |
| Kosovo* | - | - | - | - | - | - | 103 € | - | - |
| Western Balkan Average | 91 € | 121€ | 123 € | 127 € | 131 € | 128 € | 132 € | 150 € | 164 € |

**\*Kosovo** – Under the UN Resolution 1244.

**Source:** EUROSTAT, 2022
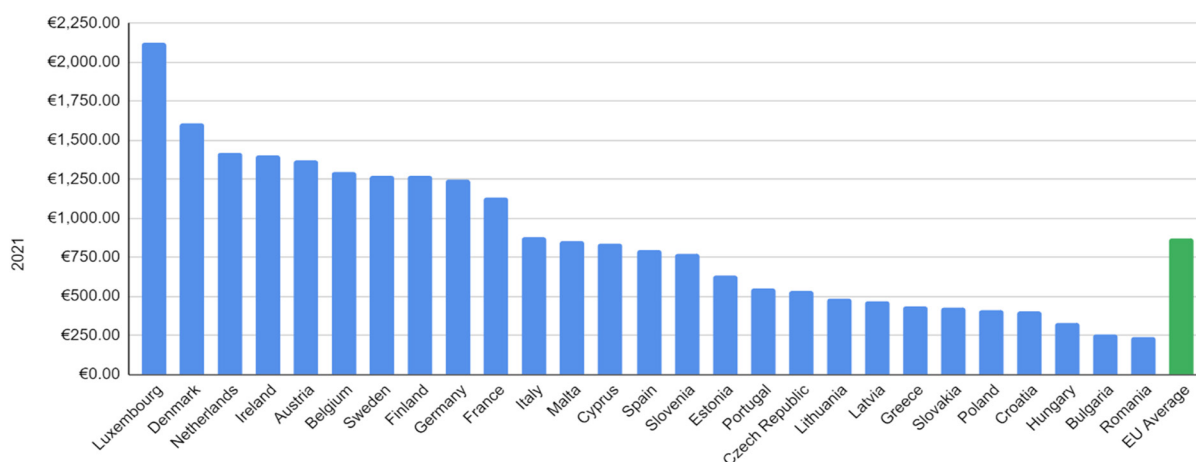


**Figure 2.** The Minimum Vital Income Statistic in European Countries
**Source:** EUROSTAT, 2022

Also, if we take into account the fact that most of the income goes to cover the expenses for food and the fact that the increase in the prices of the consumption basket has been very high during the last 3 years, the analysis shows that this value is still higher, even exceeding the limit of 200 euros per month.

## 4. CONCLUSION

The determination and approval of the Law of the Vital Minimum would affect the economic and social life of Albania. Also, if we take into account the fact that most of the income goes to cover the expenses for food and the fact that the increase in the prices of the consumption basket has been very high during the last 3 years, the analysis shows that this value is still higher, even exceeding the limit of 200 euros per month.

The definition of the living minimum level would determine the minimum of each payment that will be made from the state budget, bringing the economic/social assistance to start with the value of the living minimum. Minimal pensions must be equal to the value of the vital minimum. The minimum salary wage will start from the base of the minimum wage.

Determining the living minimum would increase the salary level in Albania, bringing an increase in consumption, savings and GDP of the country. On the other hand, the determination of the living minimum would reduce the level of poverty, bringing an increase in the economic-social-health welfare of the citizens. However, the determination of the vital minimum level would bring an increase in the state budget expenses, which could cause a possible collapse in public finances. This will require a good and clever management of public finances, an efficient use of resources and limitation of inefficient expenditures by the government. Also, this will require the establishment of a new control system and mechanisms of the state budget. Albania is yet the only country in the WB and Europe that does not have a minimum living wage defined by the law.

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# The Tax System in Albania and Its Impact on the Investor. Comparative Analysis with Countries in the Region

**Marsida Harremi**[1] 🅞

**Abstract:** *This study aims to empirically analyze the impact of different tax rates on the dynamics of investments at the macroeconomic level in Albania. In this study, a comparative analysis will be carried out with some of the countries in the region. Countries such as Albania, Kosovo\*, the Republic of North Macedonia, Montenegro, Bosnia-Herzegovina, and Serbia, which are part of the Balkans, have similarities regarding the tax systems and rates they apply to corporate profits, personal income, and consumption. These countries were chosen for the comparative analysis because of the similarity in historical, economic, and social developments. However, even between these countries, there are obvious differences regarding development policies which will be highlighted during the analysis. The data were obtained from the Bank of Albania, the fiscal legislation of Albania, and the fiscal legislation of all relevant countries taken for comparison. Based on the tax system of each country, we will reach the conclusion of what impact they have on foreign direct investments.*

## 1. INTRODUCTION

The tax system and the fiscal and budget policy followed by a certain country affect the making of investment decisions, their level in the economy, and the country's economic development in general. Based on the literature, it is emphasized the importance that the tax burden of Profit Tax, Personal Income Tax, VAT or other types of taxes have on investment decision-making and the attitude of investors.

This study aims to identify and descriptively analyze the impact that the tax burden of VAT, PT, and PIT have on the dynamics of investments at the macroeconomic level in Albania. A comparison of the tax system with the countries of the region will also be made.

## 2. THE DEVELOPMENT OF THE TAX SYSTEM SINCE THE 1993 IN ALBANIA

The tax system in the Republic of Albania consists of a package of laws, instructions, regulations, and tax agreements with other countries, which reflect the types of taxes and duties that are applied in Albania, their levels, the procedures for establishing, changing and removing taxes, procedures for assessment and collection of tax liabilities as well as forms and methods of tax control. The administration of tax obligations is carried out by the Tax Administration, which includes the General Directorate of Taxes which depends on the Ministry of Finance, regional directorates, and local government tax units charged with the administration of taxes and contributions at the local level. The exception is excise duty, which is administered by the General Directorate of Customs.

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## 2.1. Income Tax During the Period 1993-2023

Profit tax is a type of tax that is paid by all those companies, foreign or not, that are registered in the commercial register and that pay VAT. Resident taxpayers are subject to tax on the profits realized from all marriages inside and outside the territory of the Republic of Albania. While non-resident taxpayers are subject to tax only for income generated in the territory of the Republic of Albania. The taxable profit for the tax period is determined based on the balance sheet and its appendices, which must be by the legislation and accounting standards. Based on Law No. 29, Article 24 for "Income Tax" in the Republic of Albania (GDT, 2023), the profit tax rate is 0% for taxpayers with income up to 14 000 000 ALL per year, 15% for taxpayers with income over 14 000 000 ALL per year, and 5% for those persons who are active in the production and development of software, agricultural cooperation, automotive industry, agrotourism, etc. The preferential rates of 5% have been established to implement a soft fiscal policy for the development of sectors of great strategic importance in the country's economy. The agricultural and tourism sectors are the two main sectors that support economic growth and development in Albania. Table 1 shows the rate of tax on profit during the period 1993 - 2023 and then gives a graphic presentation of the budget income realized from the tax on profit.

**Table 1.** Profit tax rate

| Period | 1993-2000 | 2001-2004 | 2005 | 2006-2007 | 2008-2013 | 2014-2023 |
|---|---|---|---|---|---|---|
| **Profit tax rate** | 30% | 25% | 23% | 20% | 10% | 15% |

**Source:** General Directorate of Taxes, 2023

Table 1 shows that for nearly a decade after the transformation of the Albanian economy into a market economy, the tax rate on profit has been 30%. In the following years, this rate has decreased significantly. The lowest level was in the period 2008-2013, namely 10%. It has subsequently increased to 15% in 2014 and to continue as such until 2023. The tax rate has changed as a result of the fiscal policies undertaken by governments in the context of encouraging investment and economic development as a whole, creating a suitable climate for attracting foreign investors but also in the form of measures taken in the fight against informality and the reduction of fiscal evasion as one of the biggest problems in the Albanian economy.
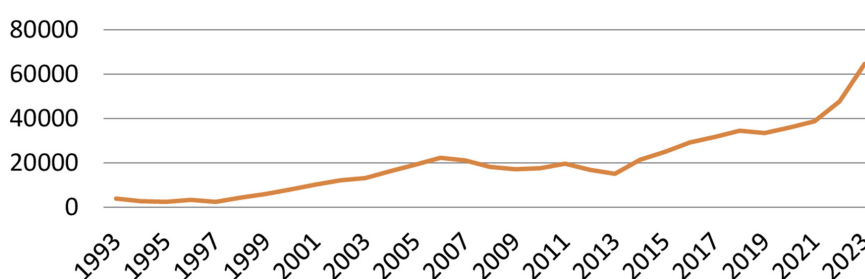


**Graph 1.** Income from Profit Tax
**Source:** Ministry of Finance and Economy, MFE, 2023

Adaptation to the new economic system required the necessary time. Educating and raising awareness among taxpayers also required time and effort. The year 1997 marks the lowest historical level of taxes collected by this husbandry. The social and political instability of that year negatively affected many economic and financial indicators at both the micro and macro levels. Many businesses were closed or damaged as a result of the severe social conflict between civilians but also to the governing structures, while many others faced major contractions in their activity and performance. All this caused the level of budget revenues from all taxes, including income tax, to

register the most significant drop. The following years were accompanied by high growth rates, the year 2009 brought another decline due to the global financial crisis. The year 2013 they recorded another significant decline, even deeper than that of 2009, to be followed by a rapid growth dynamism until 2019. The event of global COVID-19 pandemic was an event that contracted the economy in many directions, increased budget expenditures, reduced tax revenues, and more.

## 2.2. Personal Income Tax

Personal income tax is a tax that is calculated on the income of individuals provided by husbands such as wages and other rewards from employment relationships, dividends, bank interest, rent, capital gains, intellectual property, licenses, and rights others provided by the income tax law. Table 2 shows the rates and tax rates based on which income from employment relationships are taxed, which are subject to progressive taxation since 2014, and the tax rates based on which personal income is taxed. The change in the minimum payment has also brought about a change in the tax threshold. Until 2022, the minimum wage was 34,000 ALL. On the 1 of March 2023, the minimum wage in Albania became 40,000 ALL.

**Table 2.** Personal income tax calculation scheme

| Income ALL/month from wage | | Taxable ALL/month income | | Tax rate % |
|---|---|---|---|---|
| From | To | From | To | |
| 0 | 50 000 | 0 | 50 000 | 0% |
| 50001 | 60 000 | 0 | 35 000 | 0% |
| | | 35 001 | 60 000 | 13% of the amount over ALL 35 000 |
| 60 001 | Up to | 0 | 30 000 | 0 |
| | | 30 001 | 200 000 | 13% of the amount over ALL 30 000 |
| | | 200 001 | Up to | ALL 22 100 + 23% of the amount over ALL 200 000 |

**Source:** General Directorate of Taxes, 2023

Graph 2 presents the progress of the budget revenues that the government has secured from personal income tax throughout the period 1993 – 2023.
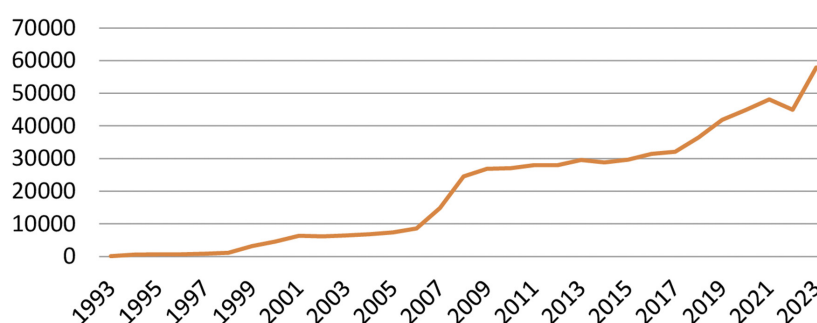


**Graph 2.** Personal Income Tax
**Source:** MFE, 2023

PIT has always been a weak source of income for the budget, especially for the first years of the transition, as can be seen from the graph. The first years of the Albanian economy as a market economy were characterized by major deficiencies in the legal and institutional infrastructure necessary for increasing efficiency and effectiveness in this field as well. On the other hand, events such as the political and social instability of 1997 could not pass without leaving a mark on the economic trend of development. Unemployment, and low wages, but especially informality in the

economy, are current problems that await solutions even today after 32 years of journey in the free market economy. The emigration of the "brain" is another big problem that is being noticed especially in recent years and is expected to bring consequences in many directions. All these and many other factors are estimated to be the cause of the low level of budget income from this source.

## 2.3. Value-Added Tax

Based on the Law of VAT in the Republic of Albania (GDT, General Directorate of Taxes, 2023) tax is a general tax on the consumption of goods and services, proportional to their price, charged at each stage of the production and distribution process to the price without the tax. VAT is applied as a percentage tax on the price of goods and services and becomes payable after deducting the VAT that directly burdens the cost elements of these goods and services. This type of tax is part of what we categorized as indirect tax and tops the list of sources of budget income. Subject to this tax are all supplies made against payment within the country but also imported goods and services. The income that the state provides from this husbandry is calculated and paid by every individual who independently carries out the economic activity as a producer, trader, or supplier, or who carries out extractive, agricultural, and professional activity. These individuals must be registered for VAT only if the turnover of their annual activity exceeds the value of ALL 10,000,000, which is the minimum registration limit. VAT is usually applied at the standard rate of 20% on the taxable value which refers to the market value or the market value of similar goods, but it can also be applied at a reduced rate. The reduced rate of value-added tax, usually 6%, is applied to a special category of supplies such as the provision of accommodation services in the field of tourism, hosting activities certified as "agritourism", the provision of advertising services by audiovisual media, supply of public transport means, supply of books of any kind, etc. Some supplies are exempt from VAT because they are considered transactions of general interest. This includes supplies for the postal service, medicines and medical equipment, services and goods related to social assistance and child protection, etc.
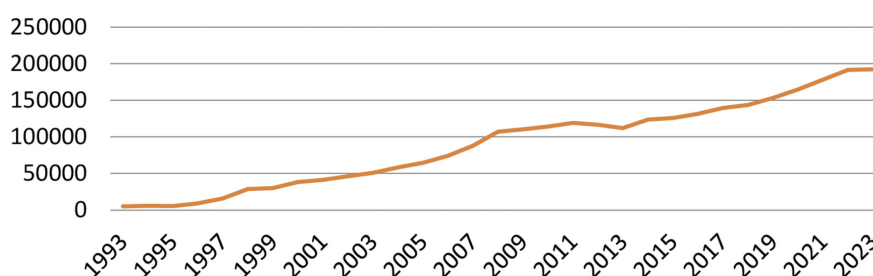


**Graph 3.** VAT
**Source:** MFE, 2023

## 3. COMPARATIVE ANALYSIS WITH COUNTRIES IN THE REGION

Countries such as Albania, Kosovo*, North Macedonia, Montenegro, Bosnia-Herzegovina, and Serbia, which are part of the Balkans, have similarities in terms of the tax systems and rates they apply to corporate profits, personal income, and consumption. For the comparative analysis, these countries were chosen because of the similarities in historical, political, economic, and social developments. The comparison with other countries of the region, such as Greece, is not addressed in this paper. Countries that have been part of the EU for a long time have much higher levels and rates of development. Also, the fiscal and budget policies that these countries follow, especially those that are part of the Eurozone, are subject to the rules and criteria set by

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\* Under the UN Resolution 1244.

the European institutions, especially after the crisis of 2009-2011. There are large disparities regarding the minimum wage, employment, corporate and personal income, investments, etc. The comparison with the countries taken in the study is more like a comparison of a common denominator. However, even among these countries, there are obvious differences in terms of development policies which will be highlighted during the following analysis.

## 3.1. Comparison of Tax Rates Applied on Personal Income

Table 3 summarizes the tax rates applied to the personal income of individuals for six countries in the region, including Albania. In all countries studied, personal income tax is subject to all resident taxpayers, for income generated inside and outside the territory of their country, as well as non-resident taxpayers, only for income generated in the respective country where have been in place for more than 183 days.

**Table 3.** Tax rate on personal income

| County | Albania | Kosovo* | North Macedonia | Montenegro | Bosnia-Herzegovina | Serbia |
|---|---|---|---|---|---|---|
| Tax rate | 6.5,13,23 | 4,8,10 | 10 | 9,15 | 10 | 10,15 |
| Employment | (prog.) | (prog.) | (prop.) | (prog.) | (prop.) | (prog.) |
| Dividend | 8 | 0 | 10 | 15 | 5 | 15 |
| Interest | 15 | 10 | 10 | 15 | 10 | 15 |
| Capital | 15 | 10 | 10 | 15 | 10 | 20 |

\* Kosovo – under the UN Resolution 1244.

**Source:** PWC, 2024

Regarding the tax applied on income from employment, Albania, Kosovo*, Montenegro, and Serbia use progressive taxation. North Macedonia and Bosnia-Herzegovina apply proportional or flat tax. In Kosovo*, progressive tax rates vary from 0 to 10%. For income from employment up to 960 euros per year, the 0% rate is applied. For income from 960 euros to 3000 euros per year, the tax rate is 4%. For income from 3000 euros to 5400 euros per year, the rate of 8% is applied, while for income from salary that exceeds this limit, the tax rate of 10% is applied. In Montenegro, progressive taxation is applied to income from employment and income from self-employment or entrepreneurship. The limit up to which no tax is paid is 700 euros for income from employment and 8400 euros for income from self-employment. For incomes from 700 euros to 1000 euros from employment, a tax rate of 9% is applied and for incomes over 1001 euros, a 15% rate is applied. If the income from the enterprise is in the segment 8400.01 - 12000 euros, they will be subject to the rate of 9% and if they exceed this limit, the rate that will be applied is 15%. In the Republic of Serbia, for taxable income that amounts to 3 to 6 times the average annual salary, the tax rate is 10%. For income that exceeds this limit, the tax rate is 15%. The non-taxable limit, related to income from employment, is 19,300 Serbian dinars. The taxable base is the gross salary reduced by the non-taxable limit. Bosnia-Herzegovina and North Macedonia use the proportional tax, respectively 10%. If we judge simply by the rate applied to income from employment in these countries, we would conclude that the last two countries under discussion have lower rates and incentives for taxpayers. However, this conclusion is premature and irrational for a researcher in the field of finance and economics. A detailed analysis is needed that includes several other factors in addition to tax rates. The classes of society should be considered, the categories that bear the greatest weight of the tax burden, and finally which form of taxation (progressive or proportional) serves more the purpose for which the whole process is carried out. In terms of tax rates applied to other income such as dividends, interest, and capital gains, Serbia has the highest rates in the region

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\*      Under the UN Resolution 1244.

followed by Montenegro and then Albania. While Kosovo* has the lowest tax rates in the region followed by Bosnia and Macedonia in ascending order, Kosovo* does not apply tax on dividend income, Bosnia applies the 5% rate, Albania 8%, Macedonia 10%, Montenegro 15%, and Serbia 15%. In North Macedonia, although all personal income of individuals is subject to a proportional tax of 10%, the exception is the income obtained from gambling, which is taxed at the rate of 15%.

## 3.2. Comparison of Tax Rates Applied to Corporate Profits

Corporations that exercise their activity in a certain country, such as Albania, Kosovo*, Macedonia, etc., are obliged to operate in compliance with the legal provisions and relevant rules of these countries, as well as to be subject to the tax regime that each of them has decided. Each country has its legal specifications on the calculation, declaration, and payment of tax liability by companies. Some of these specifications include the tax rates that will be applied, in this case on corporate profit, as well as the threshold related to the annual turnover realized beyond which the obligation to calculate and pay the tax begins. The determination of these rates is an important part of the fiscal policy that the government of a country follows in the context of economic development and the attraction of foreign investors.

Table 4. Tax rate of corporate profit

| Country | Albania | Kosovo* | North Macedonia | Montenegro | Bosnia-Herzegovina | Serbia |
|---|---|---|---|---|---|---|
| Tax rate (%) corporate profit | 15 | 10 | 10 | 9,12,15 | 10 | 15 |

\* Kosovo – under the UN Resolution 1244.

**Source:** PWC, 2024

Taxable earnings are calculated as the difference between taxable income and deductible expenses. The tax rate is applied to this difference, which determines the amount that will be paid to the state budget in the form of tax liability. Each of the above countries uses national and international accounting and financial reporting standards for the necessary calculations and reporting. In Albania, the corporate profit tax rate is 15%. While the annual turnover threshold, beyond which the obligation to apply the rate arises, is ALL 14,000,000. According to the tax legislation in Albania, taxpayers who are active in the fields of software production, agricultural cooperation, and agrotourism are exempt from this rule. A rate of 5% is applied to this category. In Kosovo*, as can be seen in the table, the rate of 10% is applied to all those companies that realize an annual turnover above the threshold of 30,000 euros (Ministry of Finance, Labor and Transfers of Kosovo, 2023). North Macedonia applies the 10% rate on corporate profit. Some companies may choose to benefit from the so-called simplified tax regime based on gross annual income. Beneficiaries can be those companies whose annual income is within the range of 3,000,000 - 6,000,000 denars, but which do not belong to the banking, insurance, or gambling sectors (Ministry of Finance of North Macedonia, 2024). Entities operating in Montenegro (Taxation in Montenegro, 2023) are subject to progressive tax on corporate profits, with the applicable tax rate varying depending on the realized profit from 9% to 15%. For-profits up to 100,000 euros, the tax rate is 9%. For a profit from 100,001 euros - 1,500,000 euros, the tax is paid in the amount of 9,000 fixed euros + 12% on the profit over 100,000.01 euros. As for the profit over 1,500,000 euros, the tax is paid in the amount of 177,000 fixed euros + 15% on the profit over 1,500,000.01 euros. Serbia (The Government of the Republic of Serbia, 2024), like Albania, applies the highest rate of 15% on corporate profits, while Bosnia-Herzegovina (Foreign Investment Promotion Agency of Bosnia and Herzegovina, 2024) applies 10%.

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\*      Under the UN Resolution 1244.

## 3.3. Comparison of Value-Added Tax Rates

**Table 5.** Value-added tax rate

| Country | Albania | Kosovo* | North Macedonia | Montenegro | Bosnia-Herzegovina | Serbia |
|---|---|---|---|---|---|---|
| Standard rate of VAT (%) | 20 | 18 | 18 | 21 | 17 | 20 |
| Reduced rate | 6,10 | 8 | 5 | 7 | - | 10 |

\* Kosovo – under the UN Resolution 1244.

**Source:** PWC, 2024

Based on Table 5, Montenegro has the highest standard VAT rate, namely 21%. Then comes Albania and Serbia with 20%, Kosovo* and Macedonia with 18%, while Bosnia-Herzegovina has the lowest standard VAT rate in the region, namely 17%. The reduced VAT rate is applied by these countries to government policies that may aim at the development of special economic sectors, the provision of basic services to all citizens as a fundamental right, etc. North Macedonia has the lowest preferential rate for certain categories of supplies of goods and services. The categories to which this norm applies in Macedonia include the supply of food for human consumption, livestock feed, drinking water (not bottled), IT equipment, children's products, textbooks, various school tools, agricultural materials and equipment, etc. In North Macedonia, all taxpayers whose total annual turnover exceeds the threshold of 25,000,000 denars are required to register for VAT purposes. The rest are free to register voluntarily. For supplies similar to those in the case of North Macedonia, which are of general public interest, other countries also apply preferential VAT rates. Serbia applies the 10% rate, Kosovo* 8%, and Montenegro 7%. In Albania, the reduced rate of 6% is applied to accommodation services, certified services such as agrotourism, advertising services, book supplies, public transport vehicles, etc. The reduced rate of 10% applies to the supply of agricultural inputs. The category of supplies that are exempt from VAT includes supplies of medical care services, supplies of human organs, blood and milk, supplies of welfare-related services, etc. After the Pandemic, many of these countries reduced tax rates for several supplies related to hotel and restaurant services to recover this sector. The threshold of registration for VAT purposes in Albania is the annual income above 10 million ALL, in Montenegro this threshold is more than 30,000 euros. For entities that do not meet this criterion, registration is voluntary.

## 4. COMPARATIVE ANALYSIS OF FOREIGN DIRECT INVESTMENT

Graph 4 shows that Serbia has the highest flows of foreign direct investments for the years 2020, 2021, and 2022. Albania ranks second, followed by Montenegro, Kosovo* and Bosnia-Herzegovina. What is worth noting is that these countries have roughly the same tax burden on capital, and yet the differences in FDI are large. In addition, differences also exist in the sectors where they are concentrated within the economy of each country. In Serbia and North Macedonia, the sector that has received the most FDI is that of production. In Kosovo*, FDI is concentrated in real estate. In Albania, they mainly belong to municipal services, financial services, and mining. The graph below helps us to identify the differences that exist in the volume of FDI between the countries of the region.

For the year 2022, Serbia ranks first with 55% of the total investments for the entire region, Albania ranks second with 15%, Montenegro 9%, Kosovo* 8%, Bosnia-Herzegovina 7% and North Macedonia 6%. In 2021, the European Investment Bank invested 853 million euros in total across the Western Balkans to promote sustainable development, digitization, and supporting small businesses. Foreign

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\*    Under the UN Resolution 1244.

investment is important for all countries in the region as they constantly face a growing current account deficit. These countries have made efforts to attract FDI not only through the improvement of infrastructure and fiscal facilities but also through the creation of agencies for their promotion.
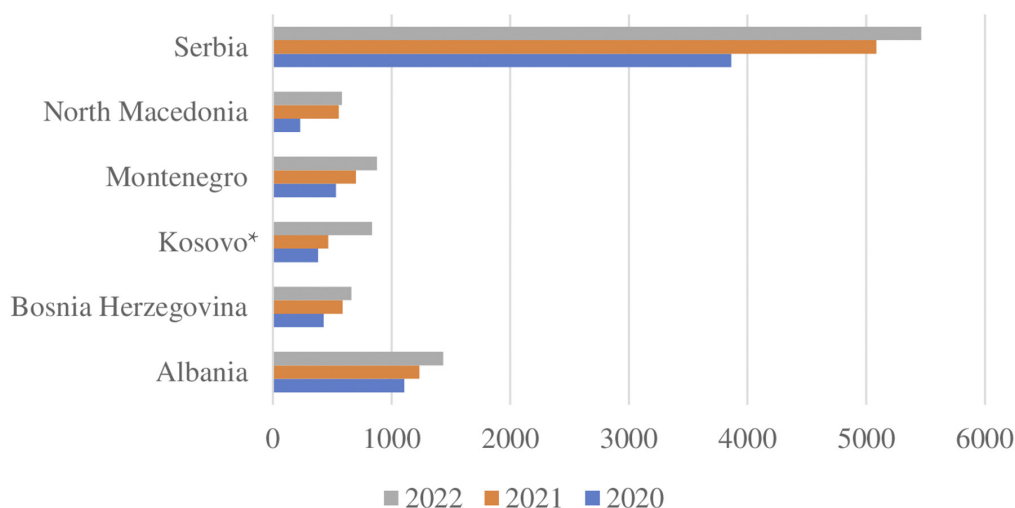


* Kosovo – under the UN Resolution 1244.

**Graph 4.** Inward Flows FDI million $, 2020,2021,2022

**Source:** UNCTAD, 2024

## 5.  CONCLUSION

Tax rates increase the cost of an investment, reduce the after-tax profit, and as such become a weighty factor to be considered in the investment decision-making process.

In Albania, Value-Added Tax and Excise are the main influencers of the tax burden and at the same time the main sources of budget revenues from taxes.

Profit Tax and Personal Income Tax have a smaller tax burden on the economy and this is due to factors such as informality in the economy, unemployment, low wages, the prevalence of small business, the lack of investment alternatives for individuals in the financial market, the lack of political will to transfer the tax burden to the capital tax, etc.

The reduction of the profit tax rate from 30% in the first years of the transition to the current 15% is evidence of efforts to improve the investment environment and encourage them. The increase in the level of investments results in higher growth during the first years due to the privatization of businesses.

The comparative analysis of the countries of the region shows that Serbia, Albania, and Montenegro have higher personal income tax rates compared to Kosovo*, North Macedonia, and Bosnia-Herzegovina. The same ranking applies to corporate income tax and VAT.

Of these six countries, which are part of the Western Balkans, Serbia, Albania, Kosovo* and Montenegro apply the progressive tax, while North Macedonia and Bosnia-Herzegovina apply the proportional or flat tax of 10%.

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6    Under the UN Resolution 1244.

But, in terms of the tax burden, calculated as the ratio of tax revenues to GDP for each country, Albania is part of the countries with a low tax burden together with Kosovo* and North Macedonia. Bosnia, Serbia, and Montenegro have the highest tax burden.

The structure of the tax burden in each country is such that the tax burden of VAT occupies a greater weight compared to the tax burden caused by other types of taxation, especially in Kosovo* and Montenegro.

In attracting Foreign Direct Investment (FDI), the most successful in the Western Balkans is Serbia. In 2021, 51.37% of the total FDI in this region is located in Serbia. Albania ranks second with 14.1%. The ranking does not change for the year 2022, in which Serbia ranks first with 55% and Albania ranks second with 15% of the total FDI in the region.

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Additional reading

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[7]    Under the UN Resolution 1244.

# Measuring Customs Revenue Performance: Insights from North Macedonia

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**Aleksandar Trajkov**[2] (ID)
**Vera Karadjova**[3] (ID)

**Abstract:** *With the continuous evolution of global trade dynamics, the role of customs authorities in ensuring efficient revenue collection has become very important. Effective customs performance measurement significantly enhances the efficiency and transparency of revenue collection processes. This study examines the performance metrics associated with revenue collection and safeguarding financial interests within the context of Macedonian Customs. The study focuses on key performance indicators such as the Proportion of customs collection of total revenue and Proportion of customs collection of total tax revenue, Rate of revenue target achievement, Variation of customs collection over time as a percentage of GDP, and Level of customs collection relative to the variation of international trade-imports. This study utilized secondary data sourced from official statistics, employing statistical methods to calculate the key performance metrics associated with customs revenue collection. Based on the determined key performance indicators, the study's findings help identify areas where customs operations can be improved to increase revenue collection efficiency and support well-informed resource allocation decisions.*

## 1. INTRODUCTION

Efficient customs revenue collection has significant importance, especially in low and middle-income countries, often constituting a substantial portion of state revenue. In high-income countries, customs and other import duties represent an average of 3.8% of state revenue, but this value goes above for countries with lower average incomes. For upper-middle-income countries, it stands at 8.9%, for lower-middle-income countries at 11.0%, and for low-income countries at 20.0% (International Monetary Fund, 2024). For North Macedonia, customs duties represent 3,5% of total budget revenues in 2022. This study examines the performance metrics associated with customs revenue collection. It aims to investigate the relationships between performance measurement and efficiency of the revenue collection process by looking into the performance of Macedonian Customs. Most studies focusing on the performance measurement in customs administrations give a positive appraisal of customs measurements and their effectiveness and efficiency (Ireland et al., 2011; Cantens et al., 2013). Several authors have discussed certain aspects of the performance of Macedonian customs (Tosevska-Trpcevska, 2014; Miloshoska, 2016, 2018, 2022). Based on the balanced scorecard system, Miloshoska proposed a List of essential key performance indicators (KPIs) for Macedonian customs (Miloshoska, 2023), but a calculation of the KPIs is required to provide a more comprehensive view of customs revenue performance. This study focuses on the calculation of the key performance indicators such as Proportion of customs collection of total revenue and Proportion of customs

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collection of total tax revenue, Rate of revenue target achievement, Variation of customs collection over time as a percentage of GDP, and Level of customs collection relative to the variation of international trade, value of imports.

## 2.   LITERATURE REVIEW

Customs Performance Measurement is a continuous gathering and analysis of data, to assess outputs and outcomes for determining the effectiveness of strategies and operations, identify areas of improvement, and address any deficiencies or shortcomings (Miloshoska, D., 2023). Customs performance measurement is most effective when it takes into account the aims unique to the Customs service and the specific political, social, economic, and administrative conditions in the respective country (Ireland et al., 2011). Cantens et al. (2013) conclude that the central purpose for using measurements or any other technique in customs and tax reform should be to help an agency improve its effectiveness and optimize its efficiency. Ireland et al. (2011) conclude that performance measurement should primarily be about improving the effectiveness and efficiency of Customs administration functions and that secondarily it can be beneficial for attracting donor funding. The importance of performance measurement in customs is recognized by the World Customs Organization (WCO) by developing the Achieving Excellence in Customs (AEC), consisting of 20 indicators to measure policy implementation of members in the four primary areas: Trade Facilitation and Security; Fair and Effective Revenue Collection; Protection of Society; and Institutional and Human Resource Development.

Based on the BSC four proposed areas of performance assessment of Macedonian customs are: 1. Revenue collection; 2. Trade facilitation; 3. Protection of society; 4. Organizational and infrastructural development. The proposed areas of performance assessment of Macedonian customs served as a framework for establishing performance objectives and developing a list of essential key performance indicators (KPIs) for each identified area (Miloshoska, 2023). Tosevska-Trpcevska (2014) concludes the positive effects of implementing the single window concept and simplified customs procedures on trade facilitation and overall efficiency and effectiveness of Macedonian customs performance Automation is a powerful tool against corruption, and its utilization should have priority. Corruption discredits Macedonian Customs and destructively affects its overall performance, leading to a reduction in public confidence. Miloshoska (2018) analyzed indicators of the security role and risk management approach of the Macedonian customs and presented the performance on the measures combating customs crime and implementation of the customs risk management approach (Miloshoska, 2016, 2022).

Customs has undergone a process of modernization since the introduction of the Revised Kyoto Convention (RKC). For the International Monetary Fund (IMF), the support of improvement in customs administration reflects the recognition that although customs administration would wither away in an ideal world, in practice trade taxes are likely to be a significant source of revenue for many of its members, especially developing countries, for the foreseeable future; and that if trade taxes are to be levied, this should be in a way that does least collateral damage to international trade flows (Keen, 2013). Using a panel of 117 countries, Baunsgaard and Keen (2010) demonstrate how trade liberalization may be hampered by the inability to find alternate sources of revenue. Results suggest that high-income countries recovered from the revenue they lost during the past wave of trade liberalization, but the same does not apply to emerging markets, where recovery from trade liberalization is weaker (Baunsgaard & Keen, 2010). The existence of tax evasion and corruption in customs administrations is another significant problem.

According to a study by Dutt and Traca (2010), corrupt bureaucrats typically demand bribes from the exporters for doing their duties, while evasion is a situation when an exporter pays off a bureaucrat to receive preferential treatment, like a lower tariff rate or lowering of regulatory standards (Dutt & Traca, 2010). Technology, automation, and IT can help customs improve their performance. Laajaj et al. (2019) found in a natural experiment in Columbia that the computerization of imports increased the firms' value by six log points, with implications for employment and tax collection.

## 3. MATERIALS AND METHODS

Under Article 10 of the Law on Customs Administration, Macedonian customs administers and collects customs duties, import VAT, excise duties (on production, import, and sales), and import fees. In 2022, a new Development Strategy and Action Plan spanning from 2022 to 2024 was introduced. One of the fundamental strategic goals of the Macedonian customs is to ensure the efficient collection of revenues for the Budget of the Republic of North Macedonia. The assessment of the Macedonian customs' success in revenue collection is very important. In this study, calculations on metrics (KPIs) are done to assess the effectiveness and efficiency of customs revenue performance. The calculations were conducted using MS Excel software. For this purpose, secondary data were used, from the State Institute for Statistics of the Republic of North Macedonia (2024), the Ministry of Finance (Ministry of Finance, 2010-2022), and the official reports of Macedonian customs (Macedonian Customs, 2010-2022). The analyzed period spans from 2010 to 2022, until which data was available. Since January 1, 2010, the management and collection of all types of excise taxes on the entire territory of the Republic of North Macedonia has been transferred from the Public Revenue Administration to the Customs Administration.

## 4. RESULTS

It is crucial to recognize the impact tax revenue has on a nation's capacity to meet its political, social, and economic goals. Reliable public services and manageable public debt are linked to an efficient tax revenue collection system (World Bank Group, 2022). The revenue collection strategic goal of the Macedonian customs focuses on ensuring efficient revenue collection. Miloshoska (2023) identified a list of 9 KPIs that should help to measure customs revenue performance. This study focuses on calculating the following key performance indicators: Proportion of customs collection of total revenue and Proportion of customs collection of total tax revenue, Rate of revenue target achievement, Variation of customs collection over time as a percentage of GDP, and Level of customs collection relative to the variation of international trade-imports. The purpose of KPI must be not to reflect the activity of the customs service but to its results and performance, that is the improvement in its effectiveness and efficiency in carrying out its mission. Focusing on results, rather than its activity, serves to point the entire organization toward its mission. Graph 1 shows the Total customs revenue and other import duties and the Yearly growth rate of customs revenue for Macedonian customs over the period from 2010-2022.

KPI Proportion of customs collection of total revenue (Graph 2) refers to the percentage of overall government revenue generated from customs duties, tariffs, and other related fees. This metric provides insights into the significance of customs revenue in the government's total revenue stream and its contribution to the national budget. A higher percentage indicates a greater reliance on customs revenue to fund government operations. In comparison, a lower percentage suggests that other sources of revenue, such as taxes or fees, play a more significant role.

Monitoring this proportion over time can help assess the effectiveness of customs revenue performance, track changes in government revenue composition, and identify potential areas for revenue diversification or enhancement.

KPI Proportion of customs collection of total tax revenue (Graph 2) presents the ratio of customs revenue to the total revenue derived from taxes. This metric offers insights into the relative contribution of customs duties, tariffs, and related fees to the government's overall tax revenue. A higher percentage indicates that customs revenue constitutes a larger share of the government's tax revenue, highlighting the significance of international trade-related income sources. Conversely, a lower percentage suggests that other forms of taxation, such as income tax or sales tax, contribute more substantially to the government's overall tax revenue. Monitoring changes in this proportion over time can help assess the effectiveness of customs revenue performance relative to other tax collection mechanisms and inform fiscal policy decisions.
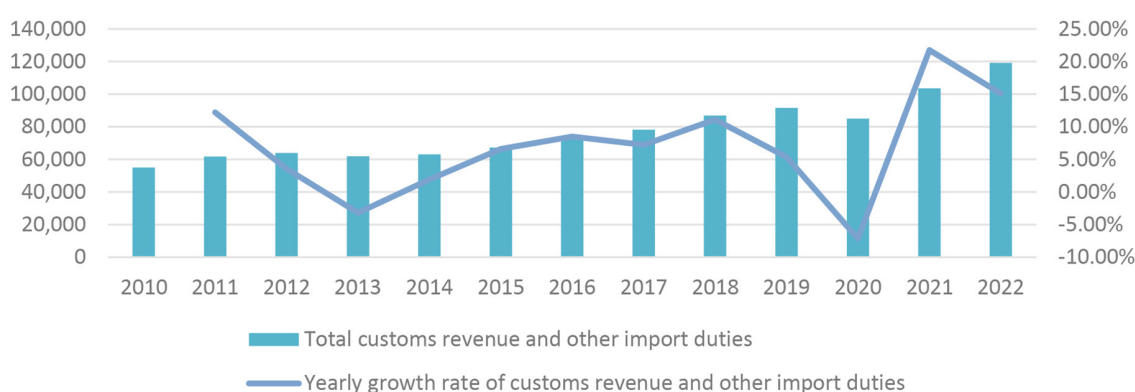


**Graph 1.** Total customs revenue and other import duties, in 000000
**Source:** Own calculations based on Macedonian Customs (2010-2022)
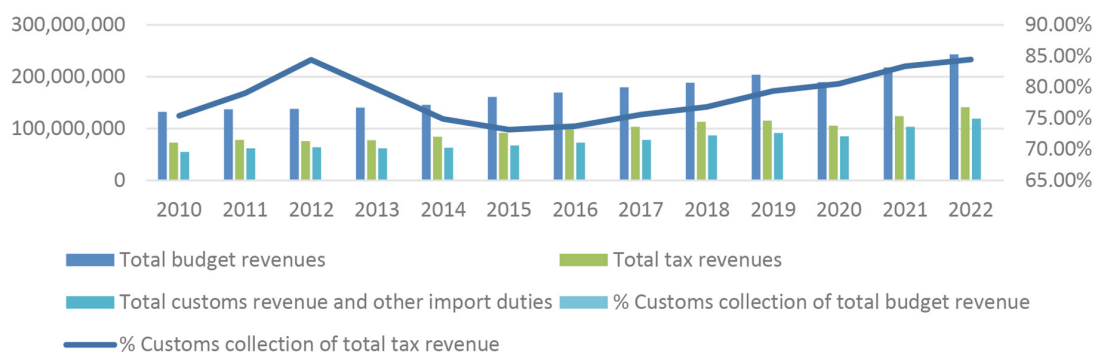


**Graph 2.** Proportion of customs collection of total revenue, Proportion of customs collection of total tax revenue, in 000
**Source:** Own calculations based on Ministry of Finance (2010-2022) and Macedonian Customs (2010-2022)

KPI Rate of revenue target achievement (Graph 3) for customs administrations is crucial, as failure to meet these targets can significantly impact a country's ability to fund essential public services. Setting revenue collection targets is essential for guiding the direction of the organization and ensuring financial stability. It provides a clear focus for efforts and helps allocate resources effectively. Customs administrations should consistently work towards meeting or exceeding these targets to support the effective provision of public services. Failure to achieve revenue collection targets affects the country's ability to provide essential public services effectively. To

assess the rate of revenue target achievement for the Macedonian customs, we gathered data on forecasted total customs revenue and other import duties, as well as actual total customs revenue and other import duties spanning the years 2010 to 2022 (Graph 3).
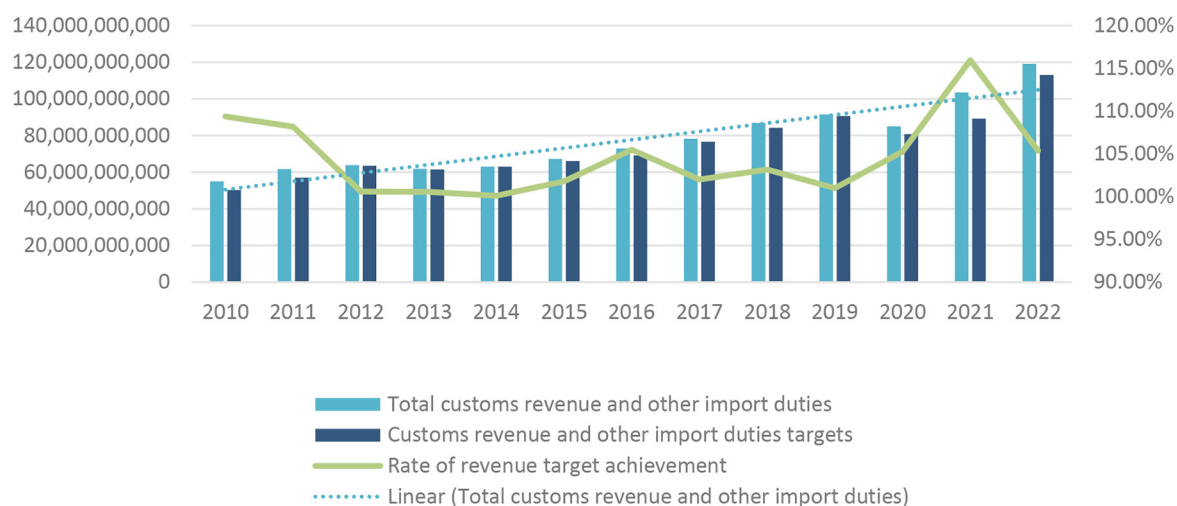


**Graph 3.** Revenue target achievement, by year, in denars
**Source:** Own calculations based on Macedonian Customs (2010-2022)

KPI Variation of customs collection over time as a percentage of GDP (Graph 4) is used to assess the consistency and reliability of customs revenue collection to the overall revenue generated by a country's Gross Domestic Product (GDP). This metric measures the degree to which customs revenue fluctuates in proportion to changes in GDP revenue over time. To calculate this metric, historical data on customs revenue collection in MKD denars and GDP in MKD denars were analyzed from 2010 to 2022. By comparing the variations in customs revenue to changes in GDP revenue during the same period, it can be determined the accuracy and stability of customs revenue collection relative to overall economic performance. A higher accuracy percentage indicates that customs revenue collection closely tracks changes in GDP revenue, suggesting a stable and reliable revenue source for the government. Conversely, a lower accuracy percentage may indicate volatility or inconsistency in customs revenue collection compared to GDP, which could have implications for fiscal planning and budgetary management.
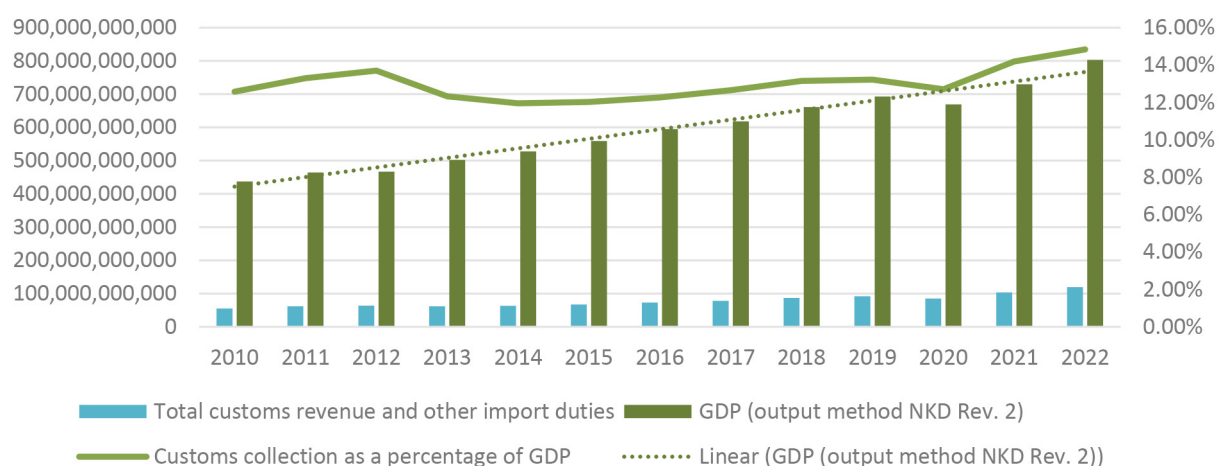


**Graph 4.** Variation of customs collection over time as a percentage of GDP
**Source:** Own calculations based on
State Institute for Statistics of the Republic of North Macedonia (2024)

KPI Level of customs collection relative to the variation of international trade, value of imports (Graph 5) refers to how changes in the volume or value of international trade impact the revenue collected by customs authorities. This relationship is crucial for understanding the dynamics of customs revenue generation and its dependence on trade activity. Generally, an increase in the volume or value of international trade can lead to higher customs revenue collection. This is because customs duties, tariffs, and other fees are often levied on imports and exports, generating revenue for the government. The level of customs revenue collected can also be influenced by tariff rates and trade policies set by the government. Higher tariffs on certain goods or changes in trade agreements can affect the revenue collected by customs authorities. The level of customs revenue collected may also be affected by smuggling activities and illicit trade practices, which undermine legitimate customs collection efforts.
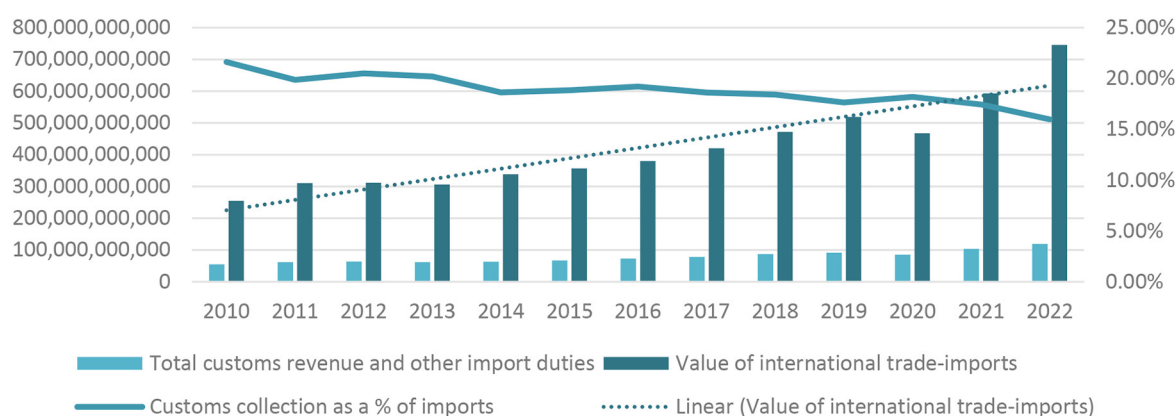


**Graph 5.** Level of customs collection relative to the variation
of international trade – value of imports
**Source:** Own calculations based on
State Institute for Statistics of the Republic of North Macedonia (2024)

## 5. DISCUSSION

During the analyzed period, total revenues, tax revenues, and customs revenues have shown continuous growth. Revenues collected in 2022 are more than double those collected in 2010 and this applies to total revenues, tax revenues, and customs revenues (Graph 1, Graph 2).

Graph 1 shows that the annual growth rate of customs duty collection over the years grows with different intensities because of a series of factors. A negative growth rate was observed in 2013, because of the amendments and additions to the Law on Customs Tariff. Customs duties were abolished or reduced for goods classified in 128 tariff labels, including certain unprocessed precious metals repromaterials. This aimed to improve the export competitiveness of the domestic industry. The weighted effective customs rate for the year 2013 is 1.38%. Similarly, a negative growth rate was recorded in 2020, primarily due to the impact of the COVID-19 pandemic. Consequently, 2021 experienced the highest growth rate, because of the recovery of the economy following the Covid crisis.

The proportion of customs revenues in the total budget revenues ranges from 40 to 50% as shown in Graph 2. The proportion of customs revenues in the tax revenues is higher and ranges from 70 to 85% (Graph 2). With customs revenues comprising a large part of tax revenues and total budget revenues, the government's fiscal health is closely tied to international trade activities. Any disruptions or fluctuations in trade volumes can directly impact budgetary income. This dependency

may make the government vulnerable to global economic trends and trade policies of other nations. Substantial reliance on customs revenues implies that the government's income is sensitive to changes in import and export volumes, as well as fluctuations in tariffs and trade agreements. Economic downturns or trade disputes can lead to reduced customs revenues, affecting the government's ability to finance its expenditures and implement policies effectively. Budget constraints resulting from fluctuations in customs revenues may impact the government's ability to invest in infrastructure, social programs, and economic development initiatives. This could affect long-term growth prospects and the country's competitiveness. Understanding the significance of customs revenues in the overall budget allows governments to plan for future fiscal sustainability. This may involve implementing measures to enhance customs revenue performance, improve trade facilitation, and diversify revenue sources to ensure resilience against economic shocks. In summary, the consequences of these proportions highlight the interconnectedness between trade dynamics, revenue generation, and fiscal policy decisions, underscoring the importance of strategic planning and risk management for sustainable economic development.

Graph 3 shows the rate of revenue target achievement for Macedonian customs for the period from 2010 to 2022. Macedonian customs by setting customs revenue collection targets (Graphic 1) provides a strategic roadmap for the administration. It helps in aligning organizational efforts and resources towards specific financial objectives, ensuring a clear direction for operational activities. By establishing customs revenue collection targets, Macedonian customs can effectively allocate resources such as personnel, technology, and infrastructure. This ensures optimal utilization of available resources to maximize the efficiency of customs revenue performance. The rate of revenue target achievement for the analyzed period stands at approximately 110%, reflecting the remarkable effectiveness of the customs officials' efforts. Analysis of the data reveals that revenue targets were largely met during this period. Meeting or exceeding revenue targets directly contributes to the effective provision of public services. No instances of failing to achieve customs revenue collection targets were observed during the analyzed period. The rate of revenue target achievement serves as a key performance indicator for Macedonian customs, reflecting their effectiveness in revenue collection and their contribution to supporting essential public services and ensuring financial stability.

Graph 4 illustrates the Gross Domestic Product (GDP), Customs Revenue, and other import duties trends spanning from 2010 to 2022. The presented data clearly shows a simultaneous rise in both GDP and customs revenue over the analyzed period. The share of customs revenues in GDP has consistently averaged between 12% to 13% throughout the years, with a notable increase observed in the last two years (2022 and 2021), where it has grown to 14%. The rise in GDP indicates overall economic expansion within the country. This could result from various factors such as increased industrial output, higher consumer spending, improved business investment, or growth in exports. The growth in customs revenue suggests heightened trade activity, both in terms of imports and exports. This could be indicative of growing international trade partnerships and enhanced efficiency in customs revenue performance. A significant portion of customs revenue as a percentage of GDP indicates a substantial reliance on international trade for economic sustenance. While trade can stimulate economic growth, over-dependence on it can also pose risks, such as vulnerability to external economic shocks or disruptions in global trade patterns. The trend of increasing GDP and customs revenue in North Macedonia signifies positive economic developments, but it also underscores the importance of balanced economic policies, prudent fiscal management, and diversification of revenue sources to mitigate risks and sustain long-term growth and development.

The KPI Level of customs collection relative to the variation of the international trade, value of imports is illustrated in Graph 5. In the Republic of North Macedonia, there are no customs rates for exports, and exports are exempt from VAT. Therefore, for this research, the focus of the analysis is on the value of imports. Examining the period from 2010 to 2022 reveals a consistent increase in the international trade, value of imports. Throughout this period, imports recorded a linear growth pattern, paralleled by a similar linear increase in revenues collected by the Macedonian customs. However, despite the growth in import values and customs revenues, there has been a declining trend in the percentage share of customs revenues relative to the value of imports, dropping from 19% to 15% over the years. This decline can be explained by several factors, primarily the reduction of customs rates resulting from free trade agreements. On the other hand, this situation could raise concerns about possible illicit trade practices among importers by presenting a lower customs value than the actual price paid for the products intended for imports into the Republic of North Macedonia. This is compounded by indications of high corruption among customs officials, which allows for various abuses to be made to pay lower duties. While the decline in the percentage share of customs revenues in the value of imports may be partly explained by regulatory changes, it also underscores the need for caution against criminal practices and corruption within the Macedonian customs.

To explore and quantify the relationship between the value of international trade, imports, and customs collection, linear regression analysis is used in this study. Simple linear regression is a statistical method used to model the relationship between two continuous variables: one independent variable (predictor-x) and one dependent variable (outcome-y). The goal of simple linear regression is to understand how changes in the independent variable are associated with changes in the dependent variable. The relationship between the independent and dependent variables is described by the equation of a straight line:

$$\hat{Y} = \beta_0 + \beta_1 X + \epsilon \tag{1}$$

Where:
$\hat{Y}$    the predicted value of customs collection (dependent variable),
$X$    the value of international trade, imports (independent variable, predictor),
$\beta_0$    represents the intercept of the regression line, which is the expected value of customs collection when the value of international trade is zero,
$\beta_1$    the slope of the regression line, indicating the change in customs collection for a one-unit change in the value of international trade,
$\epsilon$    the error term, which captures the difference between the observed values of the customs collection and the values predicted by the regression equation.

This study explores and quantifies the relationship between the value of imports (X) and customs collection (Y).

**Table 1.** Simple linear regression output

| | |
|---|---:|
| **Multiple R** | 0.995637211 |
| **R Square** | 0.991293456 |
| **Adjusted R Square** | 0.990501952 |
| **Standard Error** | 1838784539 |
| **Observations** | 13 |

**Source:** Own calculations

Multiple R (Multiple Correlation Coefficient) measures the strength and direction of the linear relationship between the dependent variable (outcome) and the independent variable (predictors) collectively. In this study, Multiple R is approximately 0.996, indicating a very strong positive linear relationship between the customs collection and the value of international trade, and imports. R-Square (Coefficient of Determination) represents the proportion of the variance in the dependent variable that is explained by the independent variables in the model. In this study, R-Square is approximately 0.991, indicating that about 99.1% of the variance in the customs collection is explained by the value of international trade, and imports included in the model. A high R-squared value suggests that the regression model provides a good fit to the data. Adjusted R-Square is a modified version of R-Square that adjusts for the number of predictors in the model. It penalizes the addition of unnecessary variables that do not improve the model fit. In the study, Adjusted R-Square is approximately 0.991, which is very close to R-Square, indicating that the inclusion of additional predictors did not significantly affect the model's explanatory power. The Standard Error measures the average deviation of the observed values from the regression line. It provides a measure of the accuracy of the predictions made by the regression model. The regression statistics in the study suggest that the regression model has a very strong explanatory power (high R-Square and Multiple R) and provides a good fit to the data, explaining a large proportion of the variability in the dependent variable.

**Table 2.** ANOVA

|  | df | SS | MS | F | Significance F |
|---|---|---|---|---|---|
| **Regression** | 1 | 4.23458E+21 | 4.23458E+21 | 1252.417515 | 1.10191E-12 |
| **Residual** | 11 | 3.71924E+19 | 3.38113E+18 |  |  |
| **Total** | 12 | 4.27178E+21 |  |  |  |

**Source:** Own calculations

Table 2. ANOVA suggests that the regression model is statistically significant in explaining the variability in the response variable, given the extremely low p-value for the F-statistic. The F-statistic is a measure of the overall fit of the regression model. It compares the mean square regression to the mean square residual. The F-value is quite large 1252.417515, indicating that the variability explained by the regression model is significantly greater than the unexplained variability. The regression model is a good fit for the data, as it explains a significant amount of variability in the dependent variable, and the relationship between the value of international trade, imports, and customs collection is statistically significant.

**Table 3.** Estimation of the model with T-statistics and confidence intervals

|  | Coefficients | Stnd Error | t Stat | P-value | Lower 95% | Upper 95% |
|---|---|---|---|---|---|---|
| **Intercept** | 20173345230 | 1703721874 | 11.84075027 | 1.33436E-07 | 16423478669 | 23923211791 |
| **X Variable** | 0.136558124 | 0.003858717 | 35.38951137 | 1.10191E-12 | 0.128065144 | 0.145051104 |

**Source:** Own calculations

Table 3. presents the coefficients, standard errors, t-statistics, p-values, and confidence intervals for each predictor variable (or independent variable) in the regression model. The coefficient for the Intercept is 20173345230, and for "X Variable " it's 0.136558124. These coefficients represent the change in the customs collection for a one-unit change in the value of international trade, imports holding all other variables constant. Looking at "X Variable ", the coefficient estimate is 0.136558124, with a standard error of 0.003858717. The associated t-statistic is 35.38951137, and the p-value is 1.10191E-12 (a very small value). This indicates that "X Variable

1" is highly statistically significant, as its coefficient is significantly different from zero. Additionally, the 95% confidence interval for the coefficient (0.128065144 to 0.145051104) does not include zero, further supporting its significance.

## 6. CONCLUSION

While measuring customs revenue performance is crucial for enhancing customs revenue collection, calculating KPIs gives a holistic overview of the fulfillment of the revenue collection strategic goal. This study focuses on the calculation of the key performance indicators such as Proportion of customs collection of total revenue and Proportion of customs collection of total tax revenue, Rate of revenue target achievement, Variation of customs collection over time as a percentage of GDP, and Level of customs collection relative to the variation of international trade, value of imports. The calculated KPIs show that total revenues, tax revenues, and customs revenues have continuous growth, with customs revenues comprising a large part of tax revenues and total budget revenues. The share of customs revenues in GDP has consistently averaged between 12% to 13% throughout the years, with a notable increase observed in the last two years (2022 and 2021), where it has grown to 14%. This could be indicative of growing international trade partnerships and enhanced efficiency in customs revenue performance. Despite the growth in import values and customs revenues, there has been a declining trend in the percentage share of customs revenues relative to the value of imports, dropping from 19% to 15% over the years. Understanding the relationship between the level of customs collection and the variation of international trade is essential for customs authorities to effectively manage revenue collection, adapt to changing trade dynamics, and support economic development goals. To explore and quantify the relationship between the value of international trade, imports, and customs collection, linear regression analysis is used in this study. The regression statistics suggest that the regression model has a very strong explanatory power (high R-Square and Multiple R) and provides a good fit to the data, explaining a large proportion of the variability in the customs collection. However, future research into measuring customs revenue performance should focus on establishing a clearer picture of how measuring customs revenue performance influences the overall performance of Macedonian customs. Furthermore, while this study measured KPIs related to customs revenue collection, future studies are required to gain more insight into different KPIs associated with different strategic goals of the Macedonian customs.

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# The Impact of Population Ageing and Demographic Changes in Pension Schemes in Europe

Enkeleda Shehi[1]  🆔

**Abstract:** *This paper examines how population ageing influences pension expenditures across European Union (EU) countries, drawing upon different statistical data. The ageing demographic, characterized by extended life expectancy and diminishing birth rates, presents challenges to the current pension systems. With projections indicating fewer contributors and more retirees in the future, pension expenses are expected to strain public finances and impact intergenerational equity. As ageing trends persist, adjustments in regulations, policy reforms, and diversified financial approaches become very important in order to uphold the adequacy and equity of pension systems. This research underscores the necessity for reforms aimed at ensuring the enduring sustainability of pension systems amidst these demographic shifts.*

## 1. DEMOGRAPHIC CHANGES

Euro area nations are currently confronting substantial demographic challenges, which are expected to bring forward significant economic consequences. According to Eurostat's 2023 population projections, the collective population of the EU is forecasted to ascend from 446.7 million in 2022 to approximately 453.3 million by 2026 (+1.5 %), before declining to 447.9 million by 2050 and to 419.5 million in 2100 (Figure 1) (Eurostat, 2023). These demographic shifts primarily stem from persistently low birth rates, alongside further enhancements in life expectancy. Furthermore, a notable phenomenon contributing to these demographic shifts is the impending retirement of the "baby boomer generation". This cohort, consisting of a substantial number of individuals born in the 1950s and 1960s, will be transitioning into retirement over the next two decades. The retirement of the baby boomer generation is likely to impact various aspects of society, including consumer spending patterns, workforce dynamics, and social welfare programs (Mackenzie, 2020). As this demographic group exits the workforce and begins to draw on pension benefits and healthcare services, increased pressure on public finances and healthcare infrastructure is projected.

Another expected demographic change is the fluctuation of the median age. The projections for the median age of the EU population show an increase from 44.4 years in 2022 to 50.2 years in 2100 (Eurostat, 2023). Furthermore, according to the same projections, median ages are projected to increase by +6.2 years for men (from 42.8 years in 2022 to 49.0 years in 2100) and by +5.6 years for women (from 45.9 years in 2022 to 51.5 years in 2100) (Eurostat, 2023). This shift in population structure towards older ages is projected to continue throughout the entire EU countries. In the second half of the century, however, the projected dynamics of this phenomenon will look different among different Member States.

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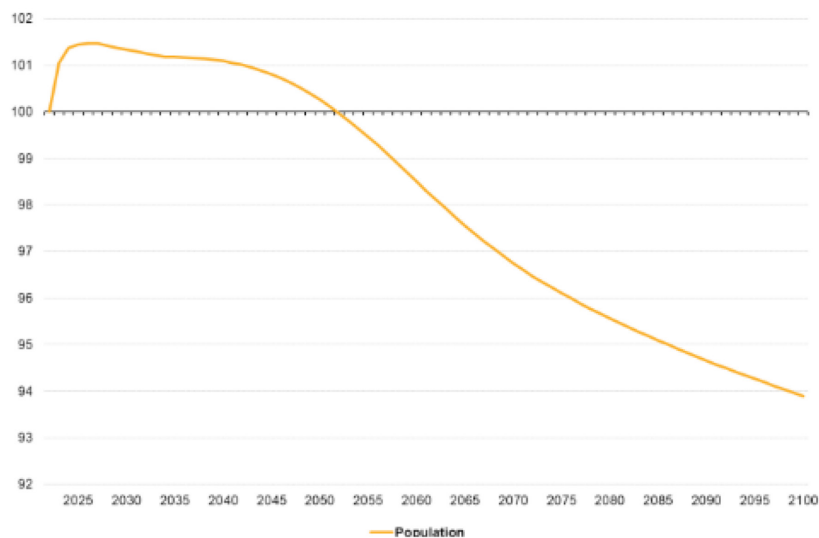
**Figure 1.** The projected population of the EU between 2022-2100 (2022 = 100)
**Source:** Eurostat, 2023

Furthermore, another particularly notable demographic trend is the significant increase in the number of very old individuals, defined as those aged 80 years and over. Eurostat projects that this demographic cohort will more than double both in absolute and relative terms, from 27.1 million in 2022 (6.1%) to 64.0 million (15.3%) by 2100 (Eurostat, 2023). Figure 2 illustrates these projections by superimposing two population pyramids, providing a visual representation of the changing demographic landscape from 2022 to 2100. These changes are expected to have big implications not only for pension schemes but also for healthcare systems, as older individuals typically require more medical care and support services. As the demographic landscape evolves, policymakers will face challenges in ensuring the adequacy and accessibility of retirement benefits, healthcare and other social support for this older population (Hinrichs, 2021). It will be crucial for governments to implement proactive measures to address these demographic shifts and promote healthy ageing across EU countries (Ebbinghaus, 2020).
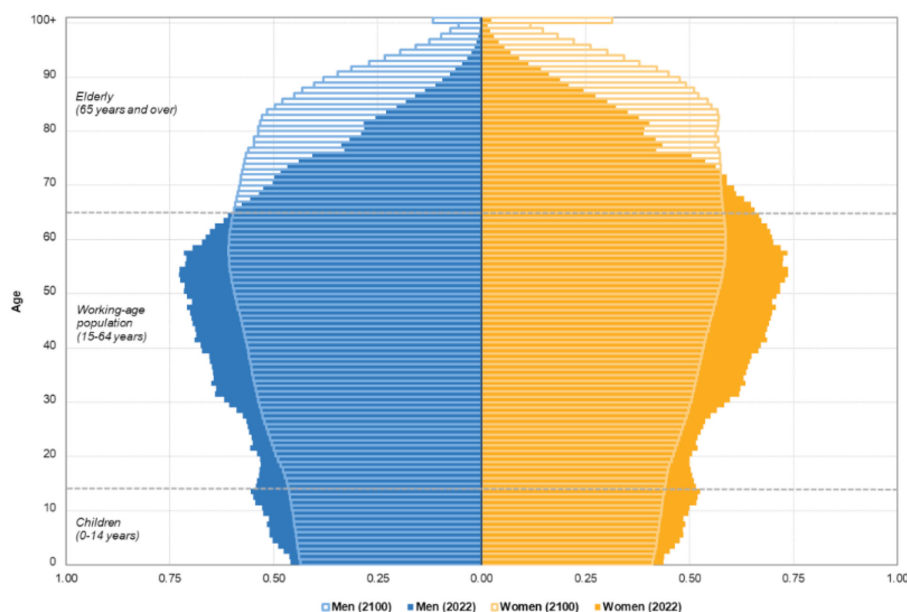


**Figure 2.** Population pyramids of EU, 2022 and 2100
**Source:** Eurostat, 2023

## 2.   THE IMPACT OF DEMOGRAPHIC CHANGES

Demographic changes, particularly population ageing, exert a significant influence on pension expenditures across the EU. As life expectancy increases and birth rates decline, the proportion of elderly individuals relative to the working-age population rises. This demographic shift poses considerable challenges to pension systems, as a larger share of the population becomes eligible for retirement benefits while the number of contributors decreases (Valls Martínez et al., 2021).

Eurostat's 2015 projections indicate a notable increase in the EU area's old-age dependency ratio by 2070. This ratio, defined as the percentage of people aged 65 or over relative to the working-age population (15 to 64 years old), is anticipated to rise substantially. Projections suggest a significant escalation from slightly above 30% in 2016 to approximately 52% by 2070 (European Central Bank, 2018). It is also expected that by 2100, the ratio of individuals of working age to elderly individuals will be five to three, reflecting a significant demographic imbalance (Eurostat, 2023). A rise in this ratio signifies a reduction in the pool of potential workers available to support each pensioner (assuming no adjustments are made to the statutory retirement age). This demographic imbalance can lead to funding deficits within pay-as-you-go pension systems which are prevalent all across Europe, where current contributions fund the pensions of current retirees (Hinrichs, 2021). To address this challenge, policymakers may need to consider measures such as raising the retirement age, increasing contribution rates, or implementing pension reforms to maintain the financial viability of pension systems (Section 4).

Furthermore, demographic changes can also affect the overall size and structure of pension expenditures. With an ageing population, there may be a greater demand for long-term care and healthcare services among the elderly, leading to increased healthcare-related pension expenditures. Moreover, there might be a need to reconsider how pension benefits are distributed across various types of pensions (Riekhoff, 2021). These could include pensions for old age, disability, survivors, and benefits for those who are unemployed. For example, as the population ages, there may be more demand for pensions related to old age and disability, while changes in employment patterns might require adjustments to unemployment benefits. This way, the pension system can better meet the needs of different groups of people in the European society.

## 3.   PENSIONS EXPENDITURES IN THE EU

As mentioned, the phenomenon of population ageing is poised to exacerbate the existing strain on age-related public expenditure. According to the European Commission's 2015 Ageing Report, expenditures on pensions, healthcare, and long-term care are projected to escalate from 21% of the EU's GDP in 2013 to 23% of GDP by 2060, as illustrated in Figure 3. These estimations incorporate the anticipated effects of past reforms in pension, healthcare, and long-term care systems (The 2015 Ageing Report, 2015).

There are, however, significant variations observed across European Union Member States, both in terms of absolute spending levels and the trajectory of long-term expenditure trends (Figure 4). According to the 2015 Ageing Report, these variations show the following differences.

In eight Member States (Croatia, Greece, Latvia, France, Denmark, Cyprus, Italy, and Spain), a decline in total age-related expenditure relative to GDP is anticipated. In these countries, the long-term projections indicate a decrease in the pension-to-GDP ratio, with reductions exceeding 3 percentage points (pp) of GDP in Croatia, Denmark, and Latvia.

On the other hand, in another group of countries (Bulgaria, Portugal, Estonia, Sweden, Hungary, Poland, Ireland, Romania, Lithuania), a moderate increase in the age-related expenditure ratio is expected, with growth of up to 2.5 percentage points of GDP.

The most substantial increase in the age-related expenditure ratio is projected in the remaining ten Member States (Finland, Austria, Czech Republic, Netherlands, Slovakia, Germany, Belgium, Luxembourg, Malta, and Slovenia), with rises ranging between 2.5 and 6.8 percentage points of GDP (The 2015 Ageing Report, 2015).
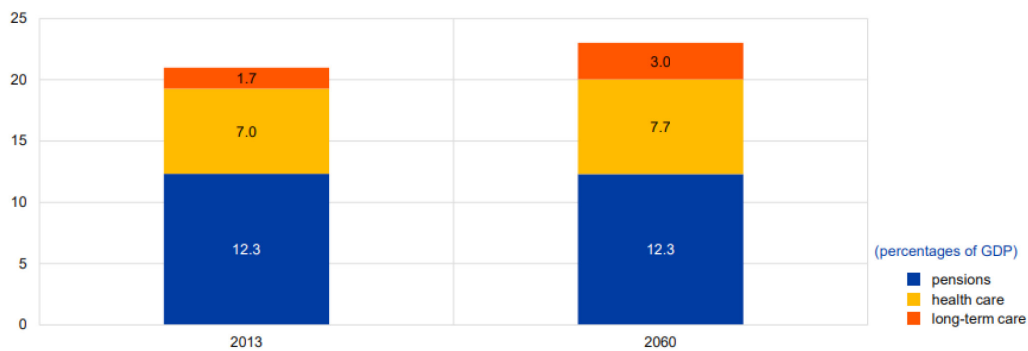


**Figure 3.** Ageing-related public spending in the EU
**Source:** The 2015 Ageing Report, 2015
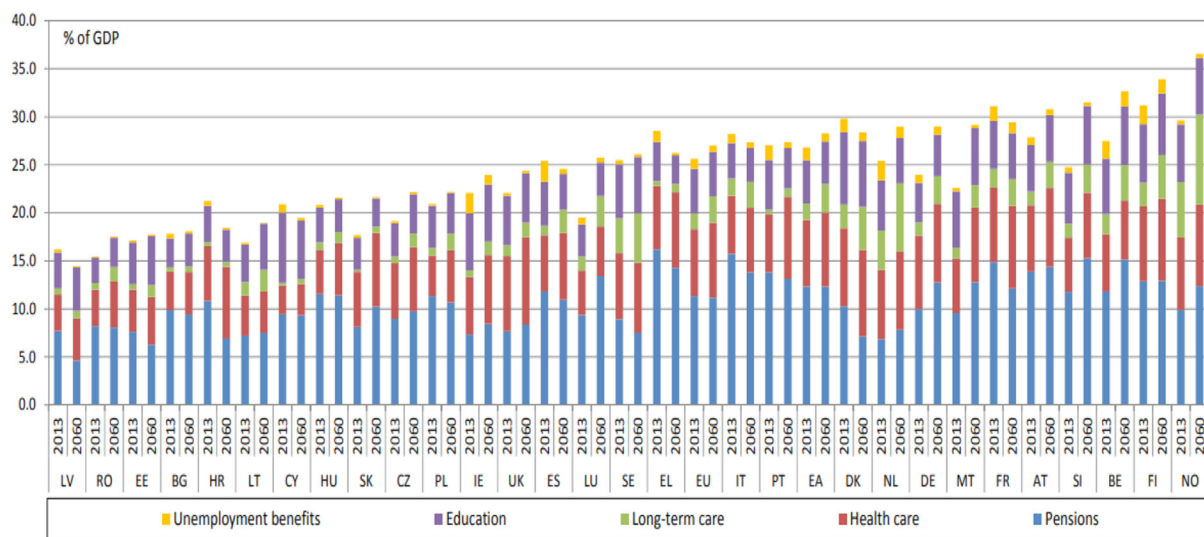


**Figure 4.** Components of total age-related expenditure, 2013 and 2060, % of GDP
**Source:** The 2015 Ageing Report, 2015

These significant disparities among Member States primarily stem from variations in their public pension systems, their level of development, and the outcomes of the pension reforms implemented thus far (The 2015 Ageing Report, 2015).

In fact, a reduction in public pension spending as a percentage of GDP over the long term is projected in the majority of Member States (Croatia, Denmark, Latvia, France, Italy, Greece, Sweden, Estonia, Spain, Portugal, Poland, Bulgaria, Romania, Cyprus, and Hungary), largely due to the implementation of pension reforms (See Section 4). These reform initiatives, which include adjustments to retirement age and pension benefits, have predominantly been undertaken to address concerns regarding the fiscal sustainability of pension systems (Carone et al., 2016).

However, according to the 2015 Ageing Report from the European Commission, there are potential risks associated with these pension projections, particularly if pensions are perceived as insufficient or the retirement age is excessively high. This perception could potentially lead to policy changes that exert upward pressure on pension spending, potentially resulting in an underestimation of future government expenditures. For instance, the public pension benefit ratio, which measures average pensions in relation to average wages, is projected to decrease in all Member States except Luxembourg by 2060, with an average decline of 9 percentage points in the EU and up to 20 percentage points in some countries (Cyprus, Portugal, and Spain) (Figure 5). As a result, the benefit ratio at the end of the forecast period (2060) is anticipated to be low. Additionally, there are upward risks associated with the projected decline in the coverage ratio (the number of pensioners as a percentage of the population aged 65 or older) in certain countries where significant increases in the legal retirement age are legislated. Conversely, if countries implement additional pension reforms aimed at reducing expenditures (which are currently being discussed in some countries), the projected expenditures could be overestimated (The 2015 Ageing Report, 2015).
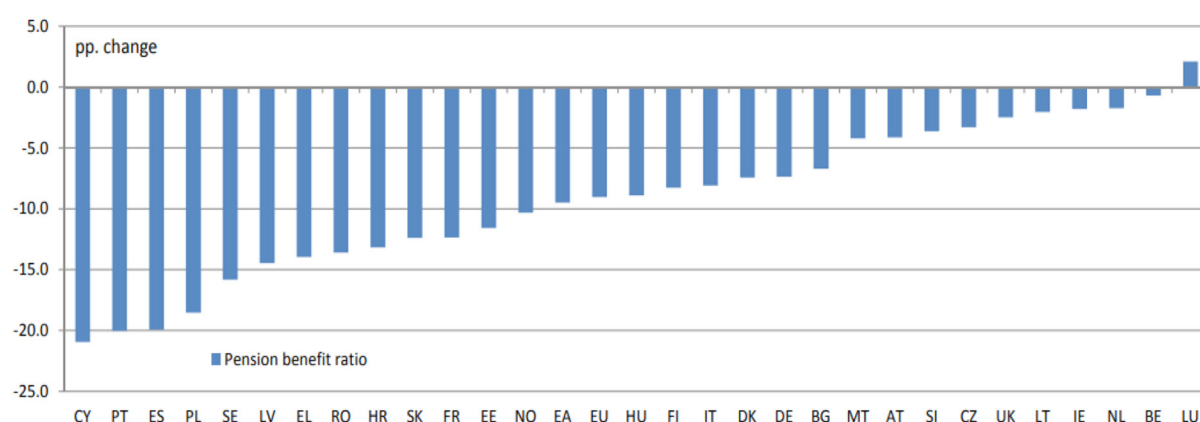


**Figure 5.** Public pension benefit ratio, change 2013-2060, pp. change

**Source:** The 2015 Ageing Report, 2015

## 4.    PENSION REFORMS

In response to the challenges posed by demographic changes on pension schemes, several Member states have implemented new pension reforms aimed at ensuring the sustainability and adequacy of pension systems. These reforms include a range of measures such as: adjustments to retirement ages, changes to contribution rates, modifications to benefit formulas, and the introduction of supplementary pension schemes.

One notable example of pension reform can be observed in countries like Greece and Italy, which have faced significant pressures on pension expenditures due to ageing populations. In Greece, pension reforms implemented since the financial crisis have included increases in the retirement age, reductions in pension benefits, and changes to the calculation of pension contributions. In 2010, Greece introduced a basic pension and made revisions to the Defined Benefit[2] first pillar. Subsequently, in 2012, it transitioned its second pillar into a Notional Defined Contributions[3] system (Carone et al., 2016). Similarly, Italy has introduced reforms aimed at increasing

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[2]    Defined benefit (DB) pension plan is a type of pension plan in which an employer promises a specified pension payment on retirement that depends on an employee's earnings history, tenure of service and age, rather than depending directly on individual investment returns.

[3]    The term Notional Defined Contributions (NDC) refers to type of public pension system in which contributions made by the public behave in similar way they would in most public funds.

the retirement age, reducing early retirement options, and promoting longer careers to address the sustainability of its pension system (Carone et al., 2016).

Across the EU, there has been a trend towards increasing the retirement age to reflect longer life expectancies and encourage longer participation in the workforce. For instance, Germany has gradually raised the statutory retirement age from 65 to 67, with further increases planned in the coming years. Similarly, France has introduced reforms to increase the retirement age from 62 to 64 over several years, as well as an acceleration in the needed number of yearly contributions from 41 to 43 in order to be eligible for a full pension (Bhattacharya, 2023). These reforms aim to align pension eligibility with demographic realities and reduce the financial burden on pension systems.

Moreover, some EU countries have introduced measures to encourage private pension savings as a supplement to public pension provisions. For example, in Sweden, the introduction of mandatory individual retirement accounts has aimed to reduce reliance on the state pension system and provide individuals with greater control over their retirement savings. Private pensions, which according to Eurostat constituted approximately 20% of total pension expenditure in 2005, are projected to represent over a third of pension spending by 2060, as outlined in the Ageing Report 2015 (Carone et al., 2016).

Additionally, pension reforms in the EU have often included measures to improve the sustainability of pension systems through adjustments to contribution rates and benefit formulas. For instance, in Latvia, pension reforms have involved linking pension benefits to contributions made over an individual's working life, thereby ensuring that pensions are better aligned with individuals' earnings and contributions (Rajevska, 2015).

Overall, pension reforms in the EU are diverse and tailored to the specific demographic and fiscal challenges faced by each Member State (Hinrichs, 2021). While these reforms aim to address the impact of demographic changes on pension schemes, ongoing monitoring and evaluation will be essential to ensure the long-term sustainability and adequacy of pension provisions across the EU.

## 5. FUTURE RESEARCH DIRECTIONS

Future research in this field could explore several key avenues to deepen understanding and inform policy. Firstly, studies could investigate the long-term sustainability of pension systems, considering not only various scenarios of demographic changes but also taking into consideration potential other economic conditions such as fluctuations in inflation, effects of ongoing wars, global pandemics, etc. This could involve assessing the effectiveness of recent pension reforms and projecting their implications for future pension expenditures. Additionally, research could investigate the potential impact of emerging trends, such as increasing automation and gig economy employment. Moreover, there is a need for comparative analyses across EU Member States to identify best practices and policy lessons in addressing the challenges posed by population ageing. Finally, research could explore innovative approaches to pension provision, including the role of private savings, voluntary pension schemes, and intergenerational solidarity mechanisms, to ensure the financial security of ageing populations in Europe.

## 6. CONCLUSION

This paper provided a concise analysis of the impact of population ageing and demographic changes on pension schemes in Europe. It examined the key demographic trends, such as

increasing life expectancy and declining birth rates, and their implications for pension expenditures across the EU. The analysis encompassed a range of factors, including pension expenditure levels, demographic projections, and the distribution of pension benefits.

One of the main findings of the paper was the significant variation in pension expenditure levels among Member States, reflecting differences in population age structures, policy responses, and historical developments. The paper also highlighted the challenges posed by population ageing, including the growing number of retirees relative to the working-age population and the strain this places on pension systems and public finances.

Furthermore, the paper discussed the role of pension reforms in addressing the challenges arising from demographic changes. It provided examples of pension reforms implemented in various EU countries, such as adjustments to retirement ages, changes to contribution rates, and the promotion of private pension savings. All the different reforms across the EU aimed to ensure the sustainability and adequacy of pension systems in the face of demographic shifts.

In conclusion, the paper underscored the importance of proactive policy responses to address the impact of population ageing on pension schemes in Europe. It emphasized the need for comprehensive reforms to ensure the long-term viability of pension systems, including adjustments to retirement ages, contribution rates, benefit levels, and funding mechanisms.

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# Supply and Demand for Apples in V4 Countries

**Elena Hošková**[1] (iD)

**Abstract:** *The paper aims to identify trends in the supply and demand of the apple market in the V4 countries. The data for the analysed years 2002-2023 are obtained from Eurostat. Descriptive and regression analysis is used. The results of the analyses show that the highest production and consumption of apples is in Poland. Poland has the largest area of apple orchards, but also the highest yield among the countries surveyed. Supply modelling shows that the supply of apples is most influenced by yield. The modelling of the demand for apples shows that in the V4 countries with lower domestic production, the demand for apples is most significantly influenced by imports.*

## 1. INTRODUCTION

Awareness of healthy foods, population growth, increasing incomes and urbanization are increasing the global demand for fruit, with apples coming in second place, (Vasylieva & James, 2021). The total production of apples in the world is about 60 million tons, (Sayin et al., 2010). Apples along with bananas and oranges are the major components of the global fresh fruit and vegetable complex (Roche et al., 1999). World trade in apples is subject to various types of restrictions. Fruits from the southern hemisphere compete with domestic production in the European market (Bladh & Axelson, 1995). Apple growers in Washington State have faced international supply and demand pressures that have forced them to seek new markets such as the European Union (Peck et al., 2005). In a small importing country in an open economy, the competitiveness of domestic production depends on consumer preferences (Ekelund & Fernqvist, 2008).

In the Czech Republic, apples are the most popular fruit and the main source of vitamins for consumers. Apples today account for about 80% of Czech fruit production, (Severova & Svoboda, 2017). In Slovakia and the Czech Republic, apple production does not cover consumption. Therefore, the import of this commodity to both countries is essential and the benefits from foreign trade are desirable (Brodnanova et al., 2022).

In view of the above, hypotheses were established:

**Hypothesis One:** Demand for apples is influenced by the price and consumer income. The supply of apples is influenced by production parameters and price.

**Hypothesis Two**: The demand and supply of apples in the V4 countries is influenced by foreign trade in apples.

The main objective of this paper is to find out how the determinants of apple demand and supply, including foreign trade in apples, affect the demand and supply of apples.

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## 2. DATA AND METHODS

Data 2002-2022 from Eurostat, The Netherslands Ministry of Foreign Affairs, CBI funds and national statistical offices in the V4 countries were used for the analysis. Descriptive analysis was used to describe the situation of the apple market in terms of production and consumption. Regression analysis was used to estimate supply and demand. We assumed that supply is influenced by the average apple harvest in tonnes per hectare*(Y)*, prices measured by the Producer Price Index in % *(Pp)* and exports in thousands of tonnes *(E)*.

Supply model

$$Qs = a + b_1 Y + b_2 Pp \tag{1}$$

Supply model after exports into account

$$Qs = a + b_1 Y + b_2 Pp + b_3 E \tag{2}$$

In estimating demand, we assumed that demand is influenced by the average disposable income of the population in EUR per year*(I)*, prices as measured by the Harmonised Consumer Price Index in % *(P)* and imports in thousand tonnes *(Im)*.

Demand model

$$Qd = a + b_1 I + b_2 P \tag{3}$$

Demand model after taking imports into account

$$Qd = a + b_1 I + b_2 P + b_3 Im \tag{4}$$

## 3. RESULTS AND DISCUSSION

### 3.1. Apple Production

#### 3.1.1. Harvested Area and Yield

Before modelling the supply of apples, it is necessary to know not only the trends in apple production but also the variables that affect it and that would be appropriate to include in the supply model. We considered the most important production parameters to be the area of apple orchards and the average yield per ha. Poland has the highest average area of apple orchards among the V4 countries. The average area in the period under study was 168.3 thousand ha with a standard deviation of 10, Table 1. The distribution is more pointed than normal, left-handed. In Poland, the maximum area of land under apple cultivation was 194.7 thousand ha in 2012. Since then it has gradually decreased, except for 2015, Graph 1. In 2020 it reached the minimum value of 152.6 thousand ha. Despite the gradual reduction of production areas in recent years, the yield of apples per ha has been increasing in Poland. The average yield per ha in Poland in the period under review was also the highest of all V4 countries, at 17 t per ha. The distribution is flatter than normal, left-handed. The lowest yield was in 2007, the highest in 2022. The average total production in Poland was also the highest, given the above, at 2842.6.

In Hungary, there was an average of 35,3 thousand ha of apple orchards in the period under review. The area was higher at the beginning of the period under review, especially in 2006, when it reached 45,5 thousand ha. Over the years they decreased and in 2021 the area of apple orchards in Hungary reached its minimum value, 25 thousand ha. The acreage distribution in the period under review was flatter than normal, left-handed. In terms of yield, it was lowest in 2003 at 11.7 t per ha and highest in 2014 (23.4 ton per ha). The standard deviation was 3.2. The distribution was more pointed than normal, left-sided. The average production in Hungary was 549 thousand tonnes, with a standard deviation of 97.6. As can be seen, in both Poland and Hungary actual production fluctuated around the average very significantly.

**Table 1.** Descriptive analysis - production

| Country | Statistics | Mean | Med. | St. Dev. | Kurt. | Skew | Range | Min | Max |
|---|---|---|---|---|---|---|---|---|---|
| Slovakia | Harvested area (tis.ha) | 2.7 | 2.6 | 0.7 | -1.3 | 0.0 | 2.2 | 1.5 | 3.7 |
| | Yield (t/ha) | 13.9 | 13.7 | 4.5 | -0.9 | -0.1 | 15.5 | 5.5 | 21.0 |
| | Production (tis.t) | 34.8 | 34.1 | 8.2 | -0.3 | -0.1 | 30.8 | 17.7 | 48.5 |
| Czechia | Harvested area (tis.ha) | 8.5 | 9.0 | 0.9 | -1.6 | -0.6 | 2.4 | 7.1 | 9.5 |
| | Yield ( t/ha) | 15.2 | 15.1 | 2.7 | 0.4 | -0.1 | 11.8 | 9.1 | 20.9 |
| | Production (tis.t) | 128.2 | 128.3 | 21.1 | -0.5 | -0.2 | 81.4 | 84.6 | 166.0 |
| Hungary | Harvested area (tis.ha) | 35.3 | 33.3 | 6.4 | -1.1 | 0.2 | 20.5 | 25.0 | 45.5 |
| | Yield (t/ha) | 15.8 | 15.3 | 3.2 | 0.2 | 0.9 | 11.8 | 11.7 | 23.4 |
| | Production (tis.t) | 549.0 | 526.9 | 97.6 | 0.9 | 0.4 | 429.9 | 350.0 | 779.9 |
| Poland | Harvested area (tis.ha) | 168.3 | 166.2 | 10.0 | 1.1 | 0.9 | 42.1 | 152.6 | 194.7 |
| | Yield (t/ha) | 17.0 | 15.2 | 5.2 | -0.1 | 0.1 | 20.8 | 5.9 | 26.7 |
| | Production (tis.t) | 2842.6 | 2830.9 | 787.1 | 0.2 | -0.1 | 3215.8 | 1040.0 | 4255.8 |

**Source:** Own calculations

In the Czech Republic and Slovakia, average area and production were significantly lower. In the Czech Republic, the area was 8,5 thousand ha (standard deviation 0,9), in Slovakia 2,7 thousand ha (standard deviation 0,7). The range of values was very similar, 2 thousand ha. The highest area of apple orchards in the Czech Republic in the period under consideration was in 2004 and 2005, namely 9,5 thousand ha. In Slovakia, it was in 2002, 2003 and 2013, when the area was 3.7 thousand ha. The harvest in the Czech Republic was similar to that in Hungary. In Slovakia, the average yield was lower, 13.9 t per ha with a standard deviation of 4.5. The distribution was flatter than normal, right-sided. Production, although significantly lower, did not fluctuate as much in both countries as it did in Poland and Hungary.

### 3.1.2. Supply of Apples

Since apple production varied quite significantly over the period of interest and apple orchard acreage varied less dynamically than fertility, we assumed in the supply models that apple production is more influenced by fertility. Therefore, it was included in the independent variables along with the price level.

The adjusted index of determination ranged from 0.865 to 0.981 across countries, Table 2. Thus, we have explained a substantial proportion of the variability in apple production with supply models. According to the F-test, both the models and the selected variables explained the variation in production with 99% confidence in all countries. However, the t-test results indicated that the change in price level in any country did not statistically significantly describe the change in apple production.
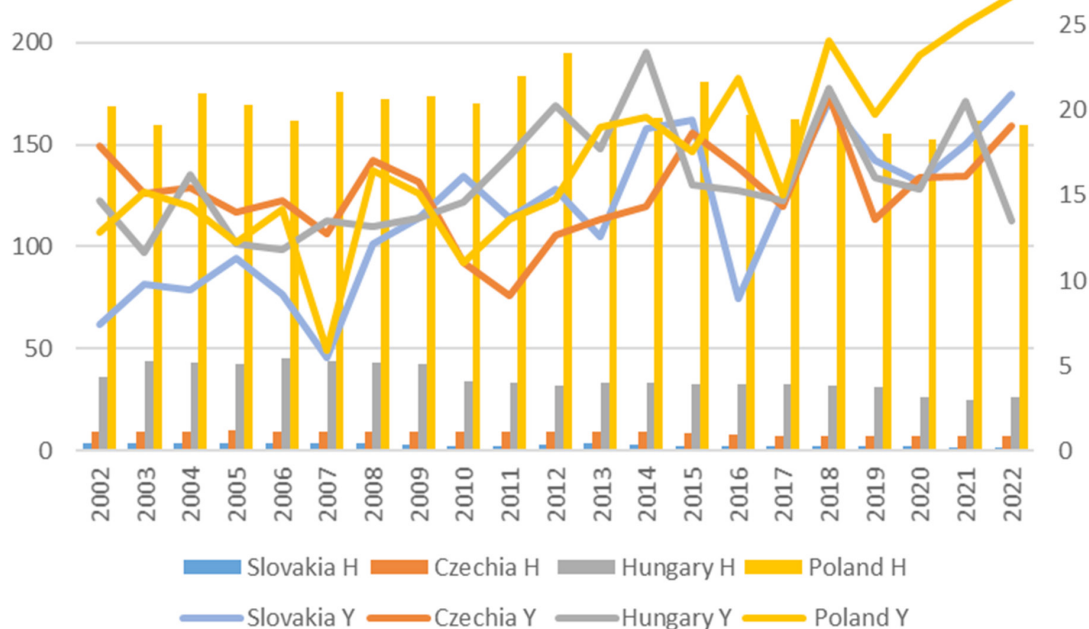
**Graph 1.** Harvested area and Yield

**Source:** CBI, n.d.; Eurostat, n.d.

**Table 2.** Estimation of supply

| Country | Adj. R Square | F sign. | Yield (T/ha) | P |
|---|---|---|---|---|
| Slovakia | 0.981 | 0.000 | 1.843 | 0.073 |
| Czechia | 0.865 | 0.000 | 6.730* | 0.167 |
| Hungary | 0.867 | 0.000 | 37.444** | -1.132 |
| Poland | 0.872 | 0.000 | 129.430** | 6.924 |

\* $P < 0.05$; ** $P < 0.01$

**Source:** Own calculations

We therefore extended the supply model to include the impact of exports, which, as the available research showed, had a significant impact on the apple market. As can be seen from the test results, the introduction of the new variable improved the estimation results on average, Table 3. In Slovakia, an increase in exports of 1000 t increases total apple production by 655 t. Export also had a statistically significant effect on production in Hungary. For the same increase in exports, production there will increase by 138 t. As regards price, production in Poland and Hungary also changes statistically significantly with the change in the price level. However, the most significant effect of the change in yields is on production in the Czech Republic, Hungary and Poland. A change in fertility affects production with 99% confidence. If fertility is increased by 1 t per ha, this will increase production by 6 762 t in the Czech Republic, 39 514 t in Hungary and 118 995 t in Poland.

**Table 3.** Estimate of supply after taking into account exports

| Country | Adj. R Square | F sign. | Yield (T/ha) | P | E |
|---|---|---|---|---|---|
| Slovakia | 0.981 | 0.000 | 1.251 | -0.066 | 0.655* |
| Czechia | 0.848 | 0.000 | 6.762** | 0.054 | 0.075 |
| Hungary | 0.852 | 0.000 | 39.514** | -2.457* | 0.138* |
| Poland | 0.855 | 0.000 | 118.995** | 13.256* | -0.076 |

\* $P < 0.05$; ** $P < 0.01$

**Source:** Own calculations

## 3.2. Consumption

### 3.2.1. Comparison of Consumption

Before modelling the demand for apples, it is important to know the consumption trends in the V4 countries. Table 4 provides the results of a descriptive analysis of apple consumption in each country in t and per capita. In terms of total consumption, the highest consumption of apples is in Poland, where it is 647.5 in thousand t with an average standard deviation of 315.9. Consumption values fluctuate considerably over the period under review. The range is 1229,9 in thousand tonnes. The highest consumption of apples in Poland in 2020 was 1337,9 tonnes. The lowest consumption was in 2012, 108 thous. The distribution of consumption in Poland was flatter than normal, left-handed, in the period under review. In terms of per capita consumption of apples, Poland had the second highest consumption, averaging 17 kg per year with a standard deviation of 8.3. The highest per capita consumption was in 2012, the lowest in 2012.

The country with the second highest total apple consumption was Hungary. The average consumption was 279.6 thousand t with a standard deviation of 124.5. The distribution was more pointed than normal, left-handed. The highest consumption was in 2007, at 681,3 thousand tonnes. The lowest in 2002 was 100,1 thousand t. Per capita consumption followed these fluctuations in 2002 and 2007, Graph 2. In terms of per capita consumption of apples, Hungary ranked first among the V4 countries. The average consumer in Hungary consumed 28.1 kg of apples per year. The distribution of per capita consumption is more skewed than normal, left-handed, over the period under review.

**Table 4.** Descriptive analysis - consumption

| Country | Consumption in Slovakia | | Consumption in Czechia | | Consumption in Hungary | | Consumption in Poland | |
|---|---|---|---|---|---|---|---|---|
| Statistics | 1000 t | Per capita kg | 1000 t | Per capita kg | 1000 t | Per capita kg | 1000 t | Per capita kg |
| Mean | 68.6 | 12.7 | 149.4 | 14.3 | 279.6 | 28.1 | 647.5 | 17.0 |
| Median | 71.0 | 13.1 | 162.8 | 15.6 | 249.5 | 25.0 | 708.3 | 18.6 |
| St.Dev. | 16.5 | 3.0 | 47.9 | 4.5 | 124.5 | 12.4 | 315.9 | 8.3 |
| Kurt. | 2.1 | 2.1 | 0.1 | 0.3 | 5.6 | 5.3 | -0.3 | -0.3 |
| Skew. | -0.6 | -0.6 | -0.9 | -0.9 | 2.1 | 2.0 | 0.3 | 0.3 |
| Range | 78.2 | 14.3 | 177.9 | 16.9 | 581.2 | 57.9 | 1229.9 | 32.5 |
| Min | 26.7 | 5.0 | 40.0 | 3.8 | 100.1 | 9.9 | 108.0 | 2.8 |
| Max | 104.8 | 19.3 | 217.9 | 20.7 | 681.3 | 67.8 | 1337.9 | 35.3 |

**Source:** Own calculations

In the Czech Republic and Slovakia, consumption is the lowest both in terms of total consumption and per capita and per year. In the Czech Republic, the average total consumption in the period under review was 149,4 thousand t with a standard deviation of 47,9. The distribution of consumption was more skewed than normal, to the right. The same was true for per capita and annual consumption of apples. The average Czech consumer consumes 14.3 kg of apples per year. The highest apple consumption was in 2014, the lowest in 2012. The difference between the consumption in these years was 16.9 kg.

In Slovakia, consumption was the lowest at 68.6 thousand t, per capita 12.7 kg and year. The distribution of consumption was more skewed than normal, to the right. Consumption was highest in 2016 at 104.8 thousand t, or 19.3 kilograms per capita and year, and lowest in 2002 at 26.7 thousand tonnes, or 5 kg per capita and year.
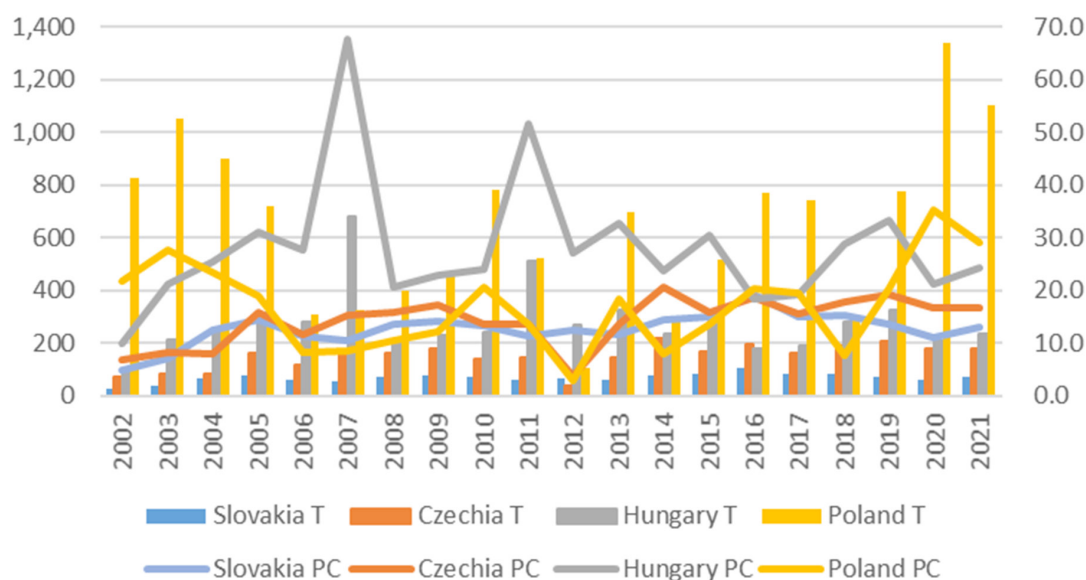
**Graph 2.** Consumption of apples
**Source:** CBI, n.d.; Eurostat, n.d.

### 3.2.2. Demand for Apples

In modelling the demand for apples, we assumed that the demand for apples is influenced by consumer income and the price level. According to the adjusted index of determination, we explained between 77.5 and 85.2% of the variation in apple consumption across countries using these independent variables, Table 5. The selected demand models were 99% reliable according to the F-test. However, according to the t-test results, only in Poland did apple consumption vary statistically significantly with the change in income. A change in the price level caused a change in apple consumption in Slovakia, Hungary and Poland with 95% reliability.

**Table 5.** Estimation of demand

| Country | Adj. R Square | Sign. F | I | P |
|---|---|---|---|---|
| Slovakia | 0.852 | 0.000 | -0.023 | 2.498* |
| Czechia | 0.801 | 0.000 | 0.002 | 1.430 |
| Hungary | 0.834 | 0.000 | -0.049 | 5.159* |
| Poland | 0.775 | 0.000 | 0.295** | -13.960* |

* $P < 0.05$; ** $P < 0.01$

**Source:** Own calculations

We then adjusted the demand model for imports, which we predicted could also significantly affect apple demand. In fact, an increase in apple imports of 1,000 t will increase apple demand in Slovakia by 345 t and in the Czech Republic by 770 ts with 99% confidence, Table 6. In Hungary and Poland, the change in imports does not cause a change in apple demand with statistical confidence.

**Table 6.** Estimation of demand after taking imports into account

| Country | Adj. R Square | Sign.F | I | P | im |
|---|---|---|---|---|---|
| Slovakia | 0.853 | 0.000 | -0.014* | 1.400** | 0.346** |
| Czechia | 0.828 | 0.000 | 0.019 | -1.921 | 0.770** |
| Hungary | 0.811 | 0.000 | -0.048 | 5.174* | -0.020 |
| Poland | 0.745 | 0.001 | 0.330* | -18.187 | 0.271 |

* $P < 0.05$; ** $P < 0.01$

**Source:** Own calculations

The explanation for why the introduction of imports did not cause an improvement in the demand pattern in Hungary and Poland can be found in the self-sufficient apples of the individual V4 countries, Graph 3. Slovakia has the lowest self-sufficiency, only 54%, and the trend is very flat. In the Czech Republic, the average self-sufficiency is 104%, in Hungary 228% and in Poland 604% with a highly fluctuating trend of development.
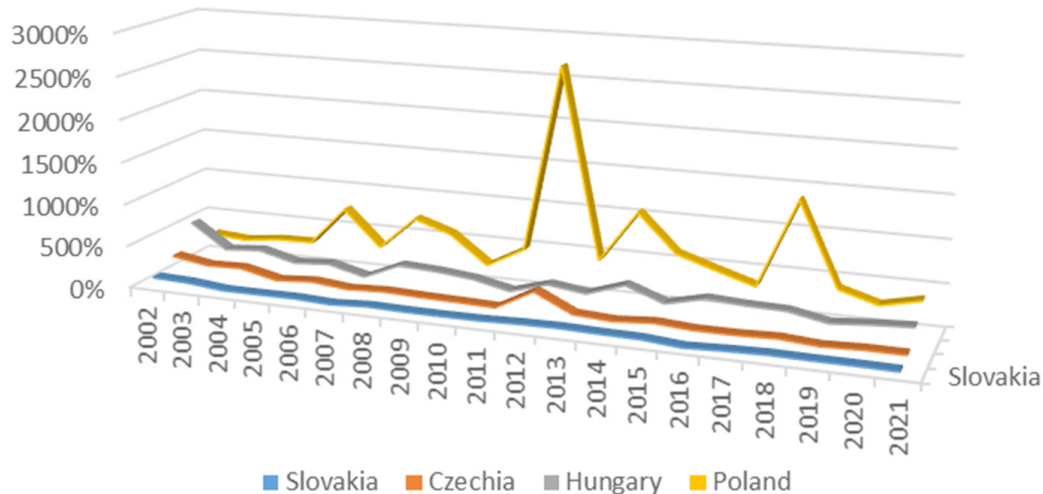


**Graph 3.** Self-sufficient
**Source:** CBI, n.d.; Eurostat, n.d.

Several authors have studied the formation of supply-demand relationships in the fruit and vegetable market and the impact of determinants on this market. In Turkey, the average apple production is 2 million tons, making it the seventh country in the world in terms of production size, (Sayin et al., 2010). Poland has seen a shrinking land area for horticultural crops while increasing the size of supply (Czyzewski et al., 2018). Many countries face competition from producers in other countries. This is because other countries have more suitable conditions for growing apples. According to research, neither Slovakia nor the Czech Republic have a comparative advantage in the apple trade (Brodnanova et al., 2022). Also, production in Sweden is facing increasing competition. Apples are imported from Italy, Argentina, New Zealand, France and the Netherlands, (Ekelund & Fernqvist, 2008). The impact of international apple trade on the domestic apple market is also important to know. If India lifts tariffs on all imported fresh apples, total consumer welfare in the US will increase by $120 million annually, (Lee et al., 2020). Increasing consumption of fruits and vegetables in recent years is a trend in several countries. In Poland, more than 55% of consumers declared consumption of more than 5 apples per week (Konopacka et al., 2010). The effects of determinants on the demand and supply of apples have also been addressed in several studies. The response of the apple market to price is inelastic in both the short and long run, (Akber & Paltasingh, 2020). Size, storage method, grade and seasonality (Tronstad et al., 1992) are the most influential factors in the price of apples (Tronstad et al., 1992).

## 4. CONCLUSION

Apple production was opposed in the V4 countries. Poland had the highest area of apple orchards in the period under review. This country also had the highest average yields per hectare and the highest apple production. In terms of production, Hungary had the second highest figure, followed by the Czech Republic. These countries had similar average yields. The lowest area, yield and production were recorded in Slovakia during the period under review. Yield fluctuated the most in

Poland and Slovakia. When modelling the supply of apples, we found that yield per hectare had the greatest impact on apple production in the V4 countries. In Hungary, supply was statistically significantly influenced not only by yield but also by price level and exports, in Poland by yield and price level, in the Czech Republic by yield, and in Slovakia only by exports.

In estimating demand, the introduction of an additional independent variable, imports, improved the predictive power of the model in countries where domestic production is low, such as Slovakia and the Czech Republic, and worsened the demand model in countries with a high share of domestic production, such as Hungary and Poland. According to the extended demand model, apple consumption was statistically significantly affected by income, price level and imports in Slovakia, imports in the Czech Republic, price level in Hungary and income in Poland.

The research results suggest that supply and demand are more responsive to foreign trade in apples in countries with lower domestic production and lower levels of self-sufficiency in apple production.

## 5.    FUTURE RESEARCH DIRECTIONS

Further research in this area could focus on identifying the determinants of demand for particular groups of the population disaggregated by age, gender, income and occupation.

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# Strategy for the Development of the Serbian Fruit Industry in Disruptive Times

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**Abstract:** *Scope of the contribution in addition to economic development, creating gross domestic product and creating jobs, agriculture plays a key role in ensuring food security. All these facts become especially important in disruptive times. The work is partly an evaluation of one of the most important sectors of agriculture - an analysis of the fruit industry in Serbia. In parallel with that, the main goal of the research and also the aimed benefits for the reader is to show the state of the fruit market in terms of production capacity, export, import, and a detailed analysis of the key players in the sector. The main used methods were descriptive statistics and SWOT analysis of two fruit industries in Serbia. Based on the analysis, the possibilities for the development of the fruit industry will be presented findings which could be potential strategies for the improvement of this sector will be formulated.*

## 1. INTRODUCTION

In addition to contributing to economic development, creating gross domestic product, and generating employment, agriculture plays a crucial role in ensuring food security. All these facts become particularly important in light of recent events, such as the Covid-19 pandemic and international conflicts among countries that are key producers of agricultural commodities in energy and food markets.

This study focuses on evaluating one of the most significant sectors of agriculture - the analysis of the fruit industry in Serbia. Concurrently, the main objective of the research is to depict the state of the fruit market in terms of production capacities, exports, imports, as well as a detailed analysis of key players in the sector. Additionally, the research includes an analysis of the current state of the entire agricultural sector. The paper pays special attention to the development opportunities of the fruit industry, with one of the main missions being the formulation of potential strategies for improving this sector.

## 2. LITERATURE REVIEW

The analysis of the fruit market in Serbia represents a crucial aspect of studying the agro-industry, considering the exceptionally diverse types of fruit cultivated in Serbian fields. Among the research that provides insights into the characteristics, challenges, and perspectives of the fruit industry in Serbia, works dedicated to fruit production in the country stand out. These studies encompass a wide range of fruit crops, including raspberries, plums, cherries, apples, and others. Some authors provide perspectives on trends, technologies, and challenges of fruit production in different parts of Serbia. For example, Stojanov (2017) analyzes the state, problems, and perspectives of fruit production in the Zlatibor District from 2005 to 2015. The paper

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emphasizes that fruit growing is one of the most profitable branches of agriculture contributing to development even in less developed areas.

Parallel to this, research focusing on the economic aspects of the fruit industry, namely economic analysis, can be distinguished. Sredojević (2016) in his work examines the contribution of the fruit industry to the country's economic development, specifically analyzing the production, processing, and marketing of cherries and sour cherries in Serbia. Dakić and Mijić (2018), using panel analysis, study the profitability of the fruit and vegetable processing industry in Serbia. This paper aims to identify factors influencing the profitability of selected companies in the fruit processing industry in Serbia. Profitability in this case is measured through the accounting indicator of return on assets (ROA). Some authors research the export and import of various types of fruit. Vlahović et al. (2015) study the state and trends of apple exports from Serbia, and besides the factual state, the paper also presents guidelines for further development of this segment of the fruit market. Stevanović et al. (2018) identify regional characteristics of market fruit and grape production in Serbia, analyzing trends in the growth and development of market apple, plum, and grape production.

Some papers explore specific challenges facing the fruit industry in Serbia, such as supply chain issues, product quality, and access to international markets. In contrast, others focus on opportunities for improvement, such as the implementation of modern production technologies, development of export strategies, or organic production. Vehapi and Šapotić (2019) focus on the determinants of the organic food market development in the Western Balkan countries. Their analysis focuses on market and political factors aiming to improve the organic product market, thus the organic fruit market, in this region. Prodanović (2015) in his work examines the impact of relevant factors on the production, processing, and turnover of organic fruit. The main goal of the research is to classify the economic effects of organic fruit production, problems accompanying processing, factors influencing demand, as well as consumer behavior in Serbia. Studies that compare the fruit industry in Serbia with other regions provide a deeper insight into competitive advantages and improvement potentials. These research studies mainly analyze similarities and differences between fruit sectors in different regions.

## 3. MACROECONOMIC ANALYSIS OF THE AGRICULTURAL SECTOR IN SERBIA

Agricultural production, as a key economic activity of the primary sector, represents a significant part of the national economy of the Republic of Serbia. Although this sector is crucial for gross domestic product (GDP) creation, there has been a trend of relative decline in recent years. The average contribution of agriculture to GDP from 1996 to 2005 was 19.37% (Milić & Pejanović, 2008). Recent research indicates a gradual decrease in the share of gross value added (GVA) of agricultural production in the total GVA of the Republic of Serbia from 2002 to 2015, with an annual rate of -5.4% (Novaković, 2019). These data confirm the assumption that as the country's economic activity grows, the share of agriculture in GDP decreases.

According to World Bank data (2021), the primary sector in the European Union contributes on average 1.6% to the formation of gross domestic product (GDP). In Serbia, this share is significantly higher, around 6% over the past five years, as seen in Figure 1. In absolute terms, GDP generated from agriculture has been trending upward, although there have been fluctuations due to the global inflation rate and weather conditions. If we consider the period between 2018 and 2022, it can be concluded that the Gross Value Added to agriculture increased by 1.11

trillion euros during these five years (Statistical Office of the Republic of Serbia, 2023). While the relative share of the primary sector is decreasing to a single-digit rate, the economic activities of the secondary and tertiary sectors, which significantly contribute to GDP formation, are gradually increasing. This dynamic can be considered positive, given that the secondary and tertiary sectors generate higher value-added than the primary sector (Milić et al., 2023).
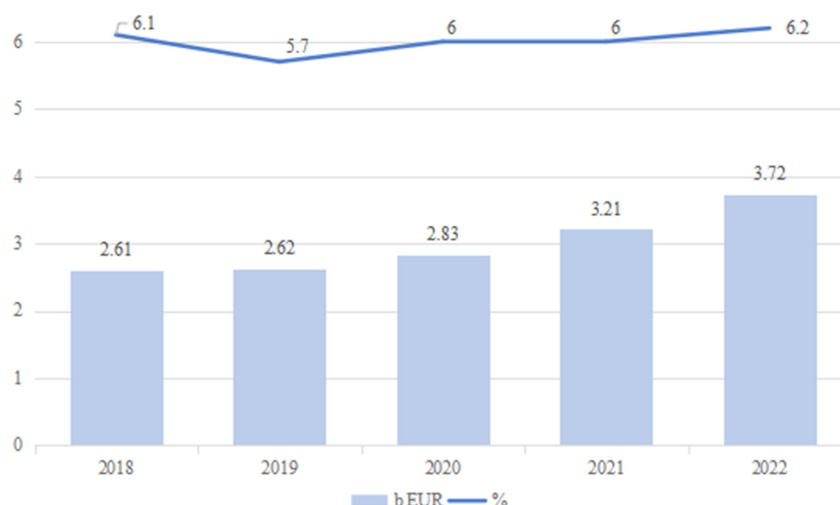


**Figure 1.** The Gross Value Added (GVA) of agriculture in billions of euros and its share in total Gross Value Added from 2018 to 2022

**Source:** Own processing

Even though the unemployment rate in Serbia is gradually decreasing, the employment rate in agriculture continues to decline, and the number of agricultural households is also decreasing (Figure 2.). Between 2017 and 2021, the employment rate in the agrarian sector decreased by 3.29%, while simultaneously the unemployment rate decreased by 5.03% over the past six years (Trading Economics, 2023; Statistical Office of the Republic of Serbia, 2023). Within the external trade balance, only agricultural and food products show surpluses, while the structure of Serbia's exports remains unfavorable, further negatively impacting competitiveness (Đukić et al., 2017). Sometimes it is difficult to achieve growth in agricultural production due to global economic trends and climatic factors affecting primary production in the country.
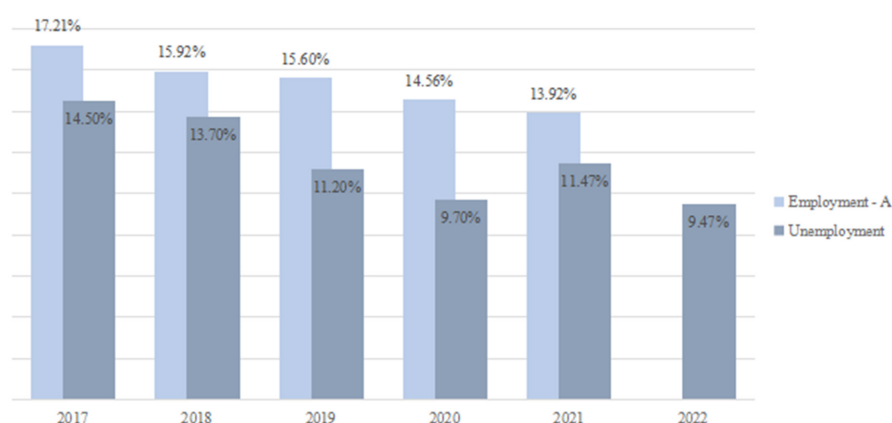


**Figure 2.** The employment rate in the agricultural sector and the unemployment rate in Serbia from 2017 to 2022

**Source:** Own processing

The employment rate in agriculture has been continuously declining, and the number of agricultural households also shows a decreasing trend, and for good reason. Between 2018 and 2022, the average gross and net wages in the agrarian sector were lower by 14.84%, with the largest difference observed in 2022, with a 17.61% difference in gross wages and a 17.69% difference in net wages (Statistical Office of the Republic of Serbia, 2023).

## 4. THE FRUIT INDUSTRY IN SERBIA

The fruit industry in Serbia has a long and rich history, and the country is known for its diversity of fruits and high-quality products. Various geographical conditions, fertile soil, and favorable climate make Serbia an ideal place for the development of the fruit industry. Some of the most common fruit crops in Serbia include apples, plums, cherries, raspberries, blackberries, sour cherries, apricots, peaches, and other fruits. Looking at the cultivated area for different fruit types in 2022, it can be concluded that plums are the most represented fruit type with an area of 72,323 hectares, followed by apples with 27,253 hectares, and grapes in third place with a total area of 19,973 hectares.

When considering total yields in Serbia by different fruit types from 2022, the largest quantities are produced from plums with 488,593 tons, followed by apples with 486,215 tons in second place, while melons and watermelons rank third with 183,578 tons. Looking at data from the past few years, it can be concluded that plums and watermelons have an increasing trend, while apples, which were in first place in 2020 according to this criterion, show a slight decrease in terms of produced quantities (Statistical Office of the Republic of Serbia, 2023).

The average yields of most fruits produced in Serbia lag behind those of the European Union due to lower levels of technology, lack of knowledge, and adequate irrigation systems, as seen in Figure 3. However, in recent years, we have witnessed the modernization of fruit production in Serbia. The fruit industry in Serbia is undergoing a process of modernization. Investments in modern technology, irrigation, organic fruit farming, and the use of digital tools are improving production efficiency. This modernization not only increases productivity but also contributes to the sustainable development of the fruit sector. The fruit industry has a significant impact on rural development in Serbia. Numerous small agricultural producers are engaged in fruit growing, supporting the local economy and maintaining the traditional way of life in rural areas.
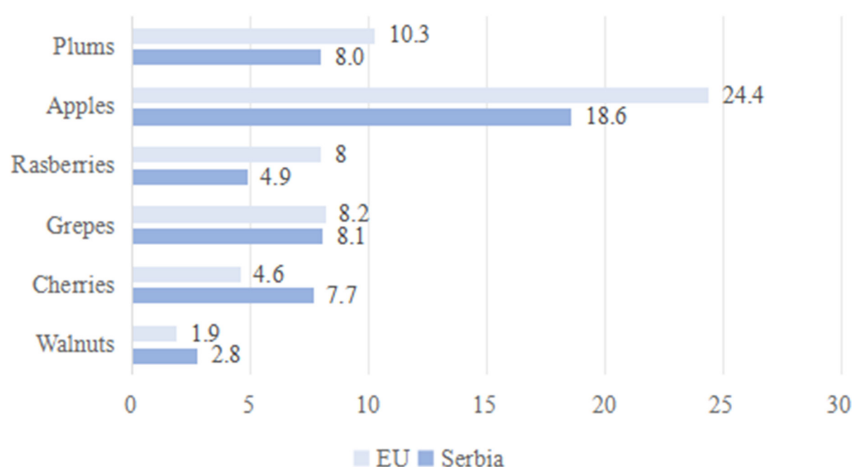


**Figure 3.** Average yields per fruit species in Serbia and the EU in 2022
**Source:** Own processing

Based on the analysis of global competitiveness, Serbia is most competitive in the production of raspberries, cherries, and plums. The competitiveness of different fruits is calculated based on the Compound Annual Growth Rate (CAGR), which represents the average annual growth rate or return on investment over a certain period, taking into account the compounded impact of interest or reinvested earnings.

The fruit industry in Serbia is not only a source of economic profit but also a guardian of tradition, providing high-quality products that attract consumers worldwide. Table 1 shows the most profitable fruit types based on export value in 2022. In terms of this criterion, frozen raspberries generate the highest revenues with 339,294,137 euros, fresh apples come in second with a value of 97,983,977 euros, while frozen blackberries rank third with a value of 68,407,703 euros. Given that raspberries and apples are the two most promising fruits in terms of exports, these types are further analyzed below.

**Table 1.** Export value by fruit species in 2022

| R.br. | Fruit species | 000 EUR |
|---|---|---|
| 1 | Raspberries, frozen | 339,294.14 |
| 2 | Apples, fresh | 97,983.98 |
| 3 | Blackberries and mulberries, frozen | 68,407.70 |
| 4 | Sour cherries, frozen | 48,983.48 |
| 5 | Cranberries, blueberries, etc., frozen | 25,744.26 |
| 6 | Cherries and sour cherries, fresh | 17,329.13 |
| 7 | Strawberries, frozen | 16,721.89 |
| 8 | Plums and wild plums, fresh | 12,804.16 |
| 9 | Peaches, fresh | 12,679.12 |
| 10 | Strawberries, fresh | 10,653.83 |
| 11 | Raspberries, fresh | 5,749.02 |
| 12 | Pears, fresh | 5,610.33 |
| 13 | Apricots, fresh | 5,011.28 |
| 14 | Apricots and peaches, frozen | 3,887.16 |
| 15 | Blackberries and mulberries, fresh | 3,401.58 |
| 16 | Melons and watermelons, fresh | 2,247.25 |
| 17 | Hazelnuts in shell | 1,299.84 |

**Source:** Statistical Office of the Republic of Serbia, 2023

Serbia has a positive trade balance of around 35 million euros in fresh fruit. Frozen fruit accounts for 65% of total exports, fresh fruit accounts for 32%, while dried fruit is represented by 3%. Serbia exports frozen berries to more than 50 different countries, with the largest share of exports going to Germany (31%) and France (13%). The most important market for fresh fruit exports is Russia, with a 62% share of total exports, while CEFTA agreement countries account for about 10%. The highest Compound Annual Growth Rate (CAGR) of export from 2016 to 2020 was achieved in the export of fresh blueberries, cranberries, and similar products, amounting to 58.5% (Statistical Office of the Republic of Serbia, 2023).

## 5. RESULTS

### 5.1. SWOT Analysis of the Apple Industry

Serbia is one of the most significant apple producers in the CEE region, with 379,690 tons of apples and 27,412 hectares of orchard area in 2023. Looking at the period between 2016 and 2021,

it can be concluded that a significant portion of apple production is intended for export, while the majority, around 70% of the total available quantity (domestic production and imports), is intended for domestic consumption (Statistical Office of the Republic of Serbia, 2023).
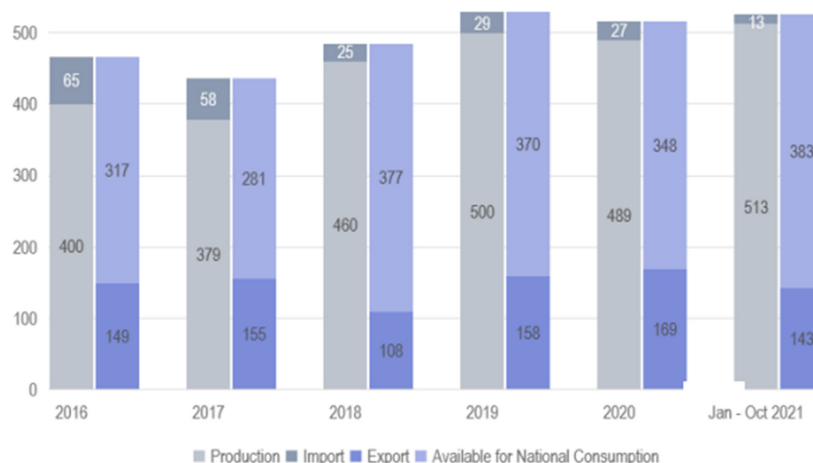


**Figure 4.** Production, imports, exports, and Serbian consumption of apples from 2016 to 2021
**Source:** Own processing



**Figure 5.** SWOT analysis of the apple industry
**Source:** Own processing

The contemporary apple industry in Serbia is still in its infancy and requires additional capital and access to new markets. When analyzing apple production in Serbia, the following significant facts are encountered:

1.  The apple industry in Serbia is still developing and requires additional capital to become more stable.
2.  Existing market players have recently entered this industry, mostly within the last 10 years, without prior experience in apple production.
3.  The largest orchards are equipped with modern technology and cover areas ranging from 60 to 700 hectares.
4.  Young orchards have unstable yields ranging from 50 to 70 tons per hectare.
5.  Total apple production in Serbia has significantly increased from 179 thousand tons in 2012 to 513 thousand tons in 2021, with an annual growth rate of 12%. However, since then, a decline in production has been observed. In 2023, the produced quantities were 22% lower compared to 2022. (Statistical Office of the Republic of Serbia, 2023).

6.  Three out of the ten largest exporters are exclusively trading companies that own warehouses, while other key players are fully integrated companies that have orchards, warehouses, and trading.
7.  Most key players face high levels of indebtedness and a lack of working capital.
8.  There is a need for additional capital and the opening of new markets to support further development of this industry in Serbia.

## 5.2. SWOT Analysis of the Rasberry Industry

Serbia is the third-largest global producer of raspberries after Russia and Mexico, exporting to more than 50 countries worldwide. In 2023, Serbia took over the third position from its main competitor, Poland, which experienced a decline in production that year. Among the most significant importers of Serbian raspberries are Germany, France, Belgium, the United Kingdom, and the United States (Statistical Office of the Republic of Serbia, 2023).

In Serbia, raspberries are cultivated on 19,016 hectares of arable land, achieving an annual yield of 98,674 tons in 2023. The average yield is 5.2 tons per hectare, which is below the world average of 6.9 tons per hectare (Kljajić et al., 2023). Serbia is a significant player in the berry market in the European Union, with the largest companies exporting more than 67% of their production. When analyzing raspberry production in Serbia, the following significant facts are encountered:

1.  Key exporters on average export more than 67% of their production, with Germany being the destination country for 33% of total exports.
2.  Serbian companies have established long-term relationships with major EU customers due to their presence in EU markets for over 30 years.
3.  In 2020, the average EBITDA margin of the industry was 6.2% due to a low level of processing.
4.  Major players such as Dole, Roger Descours, and Crop's are already present in the market, while other players like Compagnie Fruitiere and Greenyard may have good potential for entry.
5.  A significant amount of working capital is required to finance long-term growth, processing, and sales.
6.  A large number of small-scale producers (0.25 hectares) rely on family members for raspberry cultivation work (Statistical Office of the Republic of Serbia, 2023).
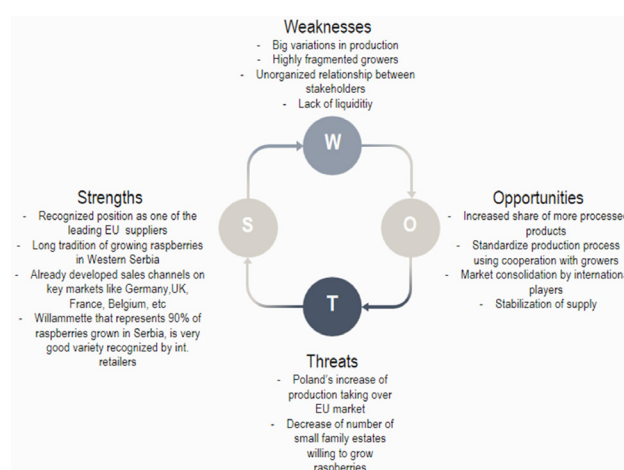


**Figure 6.** SWOT analysis of the raspberry industry
**Source:** Own processing

## 6. DEVELOPMENT STRATEGIES

Depending on the size of fruit producers, the author proposes different development strategies to achieve competitive advantage, market leadership in the fruit industry, and more profitable operations within the sector. Table number 2 presents potential opportunities, or strategies, for development in this market segment.

**Table 2.** Development strategies in the fruit industry in Serbia

| Growth in the fresh and frozen fruit and vegetable segment | Developing a strong fruit processing company providing services to international players in the industry | Creating a regional leader in innovative fruit and vegetable products | Establishing a regional leader with a similar structure attractive to global players |
|---|---|---|---|
| Capturing reputable trading companies with strong ties in domestic and international retail chains is a key point. Following that, expanding production capacities with a focus on consumer-adapted products becomes imperative. The goal is to create a strong regional leader in fresh fruit segments, especially apples, frozen berries, and other frozen fruits, as well as off-season fresh fruits. | Focusing on specific fruit crops in cultivation and trade sectors is crucial. Incorporating processing options, such as sauce (Desing) production, baby puree, and freeze-drying, further enriches the product range. Emphasis is particularly placed on global B2B products primarily used in the food industry. | Directing towards innovative categories of smaller sizes represents a key strategy. Creating added value in high-pressure processing (HPP) product segments and ready meals sets the foundation for forming a regional leader in these specific segments. | Developing a strong regional leader in the frozen berries sector represents a targeted strategy. Building a robust regional player in the value-added salad category or forming a strong regional player in the ready meals segment lays the groundwork for success. Additionally, strengthening its position in the regional market involves achieving a strong presence in greenhouse fruit cultivation. |
| Consolidation | Growth | Consolidation | Growth - Consolidation |

**Source:** Own research

## 7. CONCLUSION

The overall analysis of the fruit industry indicates a dynamic environment with significant potential for growth and development. The diversity of fruit cultures, from traditional ones like plums to newer trends such as superfoods, provides opportunities for various approaches and market segmentation. However, the industry faces challenges such as global competition, consumer demand for innovations, and increased economic sustainability. Nevertheless, through the implementation of effective strategies, technological advancements, and support from agricultural policies, the fruit industry can achieve sustainable growth, meet consumer needs, and contribute to economic development. It is important for stakeholders in this industry to continuously monitor market trends, invest in research and development, and align their practices with global standards to remain competitive and sustainable in the long term.

Serbia has the potential for further development of the fruit industry given its fertile land and tradition in fruit production. However, to harness these opportunities, the country faces certain challenges, including the need for modernization of agricultural practices, improvement of the supply chain, and adaptation to global trends in consumer preferences. The integration of innovations, technological achievements, and support from the government are crucial elements that can

enhance the competitiveness of Serbia's fruit industry. Additionally, the promotion of certified organic products can open up new opportunities in the international market. Through collaboration among producers, sectors, and relevant institutions, the fruit industry in Serbia can become a vital part of the country's economic structure, bringing both economic and social benefits.

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# Promoting Cooperation: Factors Affecting Profit Sharing Among Farmers and Cold Stores in Albania

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**Keywords:**
Cooperation;
Profit distribution;
Farmers;
Cold stores;
Cooperative Game Theory

**Abstract:** *The purpose of this study is to analyze some of the factors that influence the agreement of the members in the distribution of the profits that come as a result of the cooperation. The linear regression model is used as a statistical model. In the study, two links in the supply chain were identified: the farmers who produce the product and the cold stores (refrigerated warehouses) who buy it. This study was done in Albania, one of the most popular areas for the production and cultivation of apple products, in the area of Korca. There exist two moments of cooperation, one between refrigerated warehouses, which can combine joint orders to benefit from reductions in the purchase cost and the other between the farmers themselves. At the end of the study, it is noticed that the agreement of the members in the division of the profit depends on the importance they attach to maximization of the personal profit, the members' equal distribution, the main contributor, and the higher risk taker. As one of the most useful mathematical models for dividing the result between the members of a cooperative situation, the authors suggest the application of the cooperative game theory model.*

## 1. INTRODUCTION

One of the primary issues with the members' agreement in a cooperative setting is benefit sharing. A large number of the participants attempt to increase their own gains, which affects the sustainability of the collaboration. The supply chain is one of the most useful situations where members are motivated to work together. Collaboration within a supply chain can lead to increased efficiency in processes such as production, transportation, and inventory management. Supply chain partners often face similar risks, such as disruptions in the availability of raw materials, transportation delays, or fluctuations in demand. By cooperating and sharing information, members can better anticipate and mitigate these risks collectively, making the entire supply chain more resilient. The most studied and generalized supply chain is the one that includes suppliers and retailers.

In this study, the authors have taken into consideration the farmers of the Korca area who cultivate apple fruit and the owners of refrigerated warehouses. These are also part of the apple fruit supply chain in this area. A large part of the farmers who have more than 2 ha of planted apple roots sell the product to the refrigerated warehouses in this area. The reason why the authors have chosen this particular area is because Korca is one of the four main districts in Albania that utilizes agricultural land. Fruit trees are the primary crop produced in this area. About 23% of all fruit roots in the Republic of Albania's entire area are concentrated in the Korca district. It is especially attractive for researchers to concentrate their studies in this area because apple types make up about 79% of the fruit trees in the Korca region (Figure 1).

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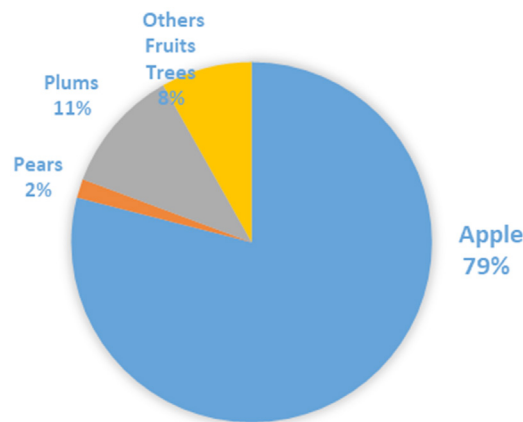
**Figure 1.** Percentage of trees by main permanent crops in Korca
**Source:** Own processing

Furthermore, it is important to note that 54.22% of apple fruit roots are found in the Korca region on a national scale (Censusi & Bujqësisë, 2022).

A general and more detailed overview of the apple sector in Albania can be found in Skreli and Imami (2019). Farmers, refrigerated warehouses, and wholesalers are the three primary participants in the value chain for apples and other fruits. The works of Gërdoçi et al. (2015) and Gërdoçi et al. (2016) investigate the coordination of the value chain in the Albanian apple industry with a focus on the key variables that affect sustainable development.

In this situation that the authors have studied, there are two moments of cooperation, one between the owners of the refrigerated warehouses who can make joint orders and the other between the refrigerated warehouses and the farmers. The work of the authors (Bekolli et al., 2023) who implemented the cooperative game theory model in the supply chain in a situation involving a farmer and multiple distributors served as inspiration for conducting this study in a real-world context.

For more applications of the cooperative game theory model in the supply chain, readers can see the works of Guardiola et al. (2007) and Nagarajan and Sošić (2008). A review of more than 130 articles that focus on game theory applications in the supply chain is the work of Leng and Parlar (2005). The cooperative game theory model offers a variety of solutions for cooperative situations. It offers joint and specific solutions, offering, in this way, the most acceptable option for all members. In the work of Bekolli and Pagria (2022), some of the subset and one-point solutions and the connections that exist between them are shown.

The purpose of this paper is to analyze the relationship that exists between the agreement of the members in sharing the benefits that come as a result of the cooperation and the importance they give to each of the objectives: *the maximization of personal profit, the members' equal distribution, the main contributor, and the higher risk taker.*

## 2. OBJECTIVES AND HYPOTHESIS

The objectives of this study are: To analyze the factors influencing member agreement in profit distribution within the apple supply chain in Albania; To investigate the relationship between individual profit maximization, equal distribution, main contributors, and risk-taking on member agreements; To compare the impact of profit distribution factors between farmers and cold

stores in the Albanian apple industry; To assess the significance of different variables in predicting member agreement for profit sharing; To propose strategies for enhancing long-term cooperation and equitable profit distribution among stakeholders in agricultural supply chains.

The main hypothesis is tested through the linear regression model; it is the same for both farmers and cold storers. In this way, it will be easier to make a comparison between the results.

**The null hypothesis is Ho***: The agreement between the members for the sharing of profits **does not depend** on the maximization of the personal profit; the members' equal distribution, the main contributor, and the higher risk taker.

**The alternative hypothesis is Ha:** Agreement between members for profit sharing **depends** on the maximization of the personal profit; the members' equal distribution, the main contributor, and the higher risk taker.

Regarding the research questions, at the end of the analysis, the authors will be able to answer the questions:
- What factors influence member agreement in profit distribution within the Albanian apple supply chain?
- How does the importance attached to personal profit, equal distribution, main contributors, and risk-taking affect member agreement in profit sharing?
- Is there a significant difference in the impact of profit distribution factors between farmers and cold storers?
- Which variables have the strongest influence on member agreement for profit sharing in the studied context?
- What strategies can be recommended to enhance cooperation and equitable profit distribution among stakeholders in agricultural supply chains?

## 3. METHODS AND PROCEDURES

To test the hypothesis, the authors used the linear regression model and the well-known software package SPSS (Statistical Package for the Social Sciences). A linear regression model is a statistical approach used for modeling the relationship between a dependent variable and one or more independent variables by fitting a linear equation to the observed data. The basic form of a linear regression model is represented as: $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots \beta_n X_n + \varepsilon$ , where Y is the dependent variable while $X_1, X_2 \ldots X_n$ are independent variables. The coefficients $\beta_1, \beta_2, \ldots \beta_n$ represent the relationship that exists between the independent variables $X_i$ and the dependent one Y. $\beta_0$ is the constant term, while $\varepsilon$ is the error term.

**Table 1.** Variables, Measures and Symbols

| Variables | Measures | Symbols |
|---|---|---|
| Dependent variable | | |
| *Sustainable cooperation* | | Y |
| Indipendent variables | OrdinalVariable. | |
| *Maximization of the Personal profit* | 1=Very important | $X_1$ |
| *Members' equal distribution* | 2=Somewhat important, | $X_2$ |
| *Main contributor* | 3= Somewhat unimportant | $X_3$ |
| *Highest risk taker* | 4=Very unimportant | $X_4$ |

**Source:** Own processing

This study's linear regression analysis provides insightful information about the dynamics of profit distribution in the Albanian apple supply chain by highlighting the complex interactions between many variables and member agreement.

The comparison between farmers and cold stores highlights the differential impacts of profit distribution factors, underscoring the complexity of stakeholder dynamics within the agricultural sector. Through robust statistical methodologies and the application of the linear regression model, we've gleaned actionable insights into the predictors of sustainable cooperation and equitable profit distribution. The findings not only deepen our understanding of collaborative dynamics within the apple supply chain but also offer practical implications for enhancing long-term cooperation and resilience. In the following tables, there are results generated by SPSS on the model summary, ANOVA, and coefficient results.

### Table 2. Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| **Case of cold stores** | .406[a] | .165 | .098 | .651 |
| **Case of farmers** | .474[a] | .225 | .163 | .651 |

a. Predictors: (Constant), maximization of the personal profit; the members' equal distribution, the main contributor, and the higher risk taker.

**Source:** Own processing

### Table 3. ANOVA[a]

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| **Case of cold stores** | Regression | 4.193 | 4 | 1.048 | 2.474 | .056[b] |
| | Residual | 21.188 | 50 | .424 | | |
| | Total | 25.382 | 54 | | | |
| **Case of farmers** | Regression | 6.142 | 4 | 1.536 | 3.621 | .011[b] |
| | Residual | 21.203 | 50 | .424 | | |
| | Total | 27.345 | 54 | | | |

a. Dependent Variable: Agreement between members

b. Predictors: (Constant), maximization of the personal profit; the members' equal distribution, the main contributor, and the higher risk taker.

**Source:** Own processing

### Table 4. Coefficients[a]

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| **(Constant)** | CS | 5.465 | 1.226 | | 4.458 | .000 |
| | F | 5.792 | .999 | | 5.798 | .000 |
| | CS | -.224 | .148 | -.206 | -1.517 | .136 |
| | F | -.485 | .135 | -.463 | -3.586 | .001 |
| **Members' equal distribution** | CS | .147 | .151 | .136 | .972 | .336 |
| | F | -.198 | .150 | -.171 | -1.322 | .192 |
| **Main contributor** | CS | -.545 | .197 | -.401 | -2.764 | .008 |
| | F | .106 | .164 | .085 | .648 | .520 |
| **Highest risk taker** | CS | .049 | .243 | .030 | .200 | .842 |
| | F | -.192 | .167 | -.150 | -1.147 | .257 |

a. Dependent Variable: Agreement between members

**Source:** Own processing

From the result of the determination coefficients, there is notice that the case of farmers shows more variability, 22.5% of the variation of the agreement of the members for the division of profits in a cooperation situation is dedicated to the maximization of the personal profit; the members' equal distribution, the main contributor, and the higher risk taker. In the case of cold storers, this percentage is lower, only 16.5%.

From Anova's table, in the case of cold stores $F_{factic} = 2.474$ and in the case of farmers $F_{factic} = 3.621$. With 95% certainty and with degrees 4 and 50 the authors find the critical value from Fisher's table and compare them, $F_{critic} = F_{\alpha}, (k-1):(n-k) = F_{0.05}; 4;50 = 2.37$. The actual values in both cases are greater than the critical one, which means that the basic hypothesis falls and the alternative one remains, that is, that the agreement among the members depends on the maximization of the personal profit; the members' equal distribution, the main contributor, and the higher risk taker.

The regression model when the owners of refrigerated warehouses were studied is:

$$Y = 5.465 - 0.224X_1 + 0.147X_2 - 0.545X_3 + 0.049X_4 + \varepsilon,$$

while the regression model for farmers who cultivate apple fruit is

$$Y = 5.792 - 0.485X_1 - 0.198X_2 + 0.106X_3 - 0.192X_4 + \varepsilon.$$

The independent variable "maximization of personal profit" has a negative impact in both case studies, but this impact is stronger in the case of farmers. So, for the members of the corporation to increase their agreement with each other, they should be careful with the importance they attach to the increase in personal benefits. From the factor analysis, taking the significance level $\alpha = 0.05$: In the case of cold stores, there is $P(\beta_3) = 0.008 < \alpha$, which means that the agreement between members for the division of profits depends on the importance given to the main contributor. In the case of farmers, $P(\beta_1) = 0.001 < \alpha$, the factor related to the importance given to personal profit was significant.

## 4. CONCLUSION

The purpose of this work has been to analyse and study the elements that influence the agreement of the members when they distribute the income that comes as a result of their cooperation. Specifically, in the study, two different components of the supply chain were taken, such as the farmers who produce the product and the cold stores who buy the product. There are two moments of cooperation, one between the cold stores which can combine their orders into a single one to benefit from the purchase of the product at a lower cost, and the other between the farmers themselves and each other.

From the linear regression model used, the authors conclude that one of the factors that has a negative impact on both models is precisely the importance given to the "maximization of the personal profit" of the members. It is one of the main factors that leads to the breakdown of the long-term relations of the members and the disagreement in the distribution of benefits. This is because each member aims to maximize his benefits sometimes and without having the right arguments. In order to have a long-term agreement between farmers and cold stores, in the distribution of the profits that come as a result of the cooperation, those members who are the main contributors to the generation of profits should also be taken into consideration and not be distributed in an

equal manner. What the authors propose is to use well-studied scientific methods for the distribution of profits in a cooperative situation with the aim that every member remains satisfied. One of the most commonly used mathematical models in these situations is the cooperative game theory model, which takes into account the profit of each possible coalition between the members and their marginal contributions to each coalition. It is one of the most used models in the literature and offers several types of solutions, mentioning the core, the nucleolus, the Shapley value, etc.

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# Circular Approach as an Alternative for Escalating Constraints in the Agri-Food System: A Case Study for Livestock Farms in Albania

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**Abstract:** *The circular economy approach in the agri-food sector can lead to increased efficiency, food security, reduction of food loss and waste and offer opportunities for increasing the economic value. The study provides an overview of farmer's knowledge and awareness of the concept of circularity and the level of implementation in Albania, aiming to assess the potential of a circular economy approach in livestock production. Through a combination of qualitative and quantitative research, farmer's perceptions of the importance of specific circular practices were analyzed. The study highlighted the importance of circularity in optimizing resource utilization, reducing waste, and contributing to a regenerative and resilient food system. Besides, the results evidenced the need to address the lack of knowledge and education in sustainable agriculture.*

## 1. INTRODUCTION

Globally, agriculture and its related activities are facing major challenges, consisting of the need to match the demand of a growing world population Dani (2015), and in the meantime keeping track of its footprint within the "planetary boundaries" (Rockström et al., 2009).

According to FAO (2018), businesses will not be able to sustainably feed the growing world population and meet global food demand, without causing detrimental or even irreversible effects on the world's natural resources. It is estimated that 1.3 billion metric tons of food worldwide are produced and not consumed each year, representing approximately one-third of total food production by volume, while food loss and waste generate about 8% of the global greenhouse gas emissions FAO (2011). The way toward the "circular approach" can be an option for increasing the resilience of the agri-food systems. When applied in agriculture and livestock farming, the circular economy's concept consists of closing the loop system, reducing waste through reuse, recycling and regeneration, and using effectively the resources (Van Buren et al., 2016).

After analyzing the data provided by the Edgar Food database, the share of food system emissions to the total GHG emissions in Albania exceeds the European and World average level by 35.5%, (table 1).

**Table 1.** The caption GHG food system emissions to total GHG emissions

|  | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---|---|---|---|---|
| WORLD | 0.506356 | 0.493905 | 0.469842 | 0.470328 | 0.36918 |
| EUROPE | 0.400071 | 0.405787 | 0.371861 | 0.367326 | **0.36918** |
| **ALBANIA** | **0.578783** | **0.580045** | **0.546966** | **0.554468** | **0.572689** |

**Source:** European Commission, n.d.

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Leip et al. (2015), conclude that while agricultural activities are a major source of pollutants and land use change, livestock production systems dominate the environmental consequences. Therefore, to mitigate the environmental pollution, at first, the issues of the livestock sector must be addressed.

In Albania, the livestock sector occupies an important role in the economic development of the agriculture sector. Its significance is mainly related to the structure and share of the agricultural land and also to the physical number of animals. Despite its dominant role in the agricultural economy, since 2013 a permanent decrease in the number of livestock units has been observed. The structure of livestock is dominated by cattle, representing 42.2%, followed by small ruminants (sheep & goats) 32.4%, poultry 11% and pigs 6.7% (INSTAT, 2023). Similarly, as in other not industrialized countries, due to the lack of adequate policies, absence of specific strategies that include waste management dedicated to the agriculture sector, and lack of subsidies that foster the implementation of circular practices on the farm level and throughout the value chain, the livestock production is characterized by a significant negative impact in the environment. Even though loss of production occurs at all levels of the supply chain, due to the typology and size of farms, significant losses occur mostly near the farm level.

Circular agriculture is proposed by scientists and policymakers as a promising pathway toward a food system transformation (Hoogstra et al., 2024). OECD argues that improved resource efficiency and transition toward a circular economy are highlighted as potential solutions to the fact that using natural resources relatively sparingly would allow economic growth to be decoupled from its less desirable environmental side effects. In this line, various studies bring evidence that the implementation of the circular economy model in livestock farming involves converting by-products from the food system and biomass from grasslands into valuable food, manure, and other ecosystem services, contributing significantly toward feeding the population (Oosting et al., 2022).

This paper provides an overview of farmer's knowledge of the concept of circularity and also examines the potential for implementing circular practices in livestock operations.

## 2. LITERATURE REVIEW

In this section, a synthesis of the overarching insights on the implementation of circular practices at the farm level is explored. The growing interest in circular farming solutions is driven by the positive impact on the environmental, social, and economic aspects of agriculture. Van Zanten et al. (2019), define the role of farm animals reared under the circular paradigm, implying that they can have a significant contribution to food supply, reducing environmental impact on the food system and offer economic benefits due to cutting costs. In Albania, there is no evidence of the state of art of the circular practices applied by farmers in livestock production and therefore it is unclear the extent of the emerging circular initiatives.

Recently, the European Union has supported Albania in developing a circular economy and sustainable green growth, aiming to approximate and enforce current legislation for a better implementation of the circular economy approach. Anyhow, to understand the conditions and support farmers to apply circular initiatives, identifying farmer's knowledge of the circularity concept, current application and alternative practices in their respective farms is necessary. Ruminants are valuable in converting renewable resources from rangeland, pasture and crop residues into food for humans (Oltjen & Beckett, 1996).

Duncan et al. (2023), examined the concept and origins of the circular economy practices, focusing mainly on the impact of crop residue retention, residue incorporation and their effects on crop yield and soil fertility, use of manure and feeding of crop residues to livestock, providing promising practices that adhere to circular economy principles. Therefore, examining the actual practices that farmers apply is essential for improving the sustainability of the livestock sector and food chain. This research fills in the gap of literature on the instances of how livestock production in Albania is integrated into the circular economy.

## 3.    MATERIALS AND METHODS

The research method used in this study comprises an exploratory approach, accomplished with qualitative and quantitative techniques, organized in two stages. In the first stage, an engagement strategy for stakeholders' involvement was applied. Through focus group meetings and workshops with supply chain actors, the knowledge and awareness of stakeholders related to the circular economy concept were summarized. To attain a clear overview of the potential of implementing circular practices throughout the value chain, and mostly on the farm level, a set of questions was addressed during the meetings.

Table 2 summarizes the stakeholder's involvement, engagement strategy, and the questions that were addressed to the participants, focusing on the means that limit the implementation of circular solutions within the food chain and mainly on the farm level.

**Table 2.** Actors, engagement strategy and questions for identifying the level of transition toward the circular economy

| Actors | Engagement strategy | Questions |
|---|---|---|
| ✓ Livestock farmers<br>✓ Milk/meat processors<br>✓ Regional Center of Agricultural Extension<br>✓ Center of Agricultural Technology Transfer<br>✓ Academics (Agriculture Faculty)<br>✓ NGO-s representatives | Informing – presentation<br>Multi-actor conversation<br>Exchange – questionnaire<br>Exchange – workshop | ✓ Is there sufficient knowledge of the principles of circular economy?<br>✓ Do farmers apply circular practices in their farms?<br>✓ Are value chain actors aware of the circular practices?<br>✓ Are chain actors willing to get involved and cooperate in circular economy solutions?<br>✓ Are they moving toward circular economy models?<br>✓ Do they plan to invest in circular economy practices?<br>✓ Is the added value of livestock products increasing?<br>✓ Is the government supporting the implementation of circular practices (funding & regulatory framework)?<br>✓ Do they plan to move toward lower waste?<br>✓ What technology, innovation, and support are needed to increase the level of circularity? |

**Source:** Own research

After the consultation phase with stakeholders, a structured questionnaire was designed and distributed to farmers. The target population was livestock farmers involved in dairy & beef cattle farms, sheep & goats and pig farms, located in the regions of Korca and Dibra. Part of the survey was considered potential market-oriented livestock farms. In total, were considered accurate for providing an in-depth analysis of 147 questionnaires.

Elia et al. (2017) point out that assessing the level of circularity in agriculture cannot only provide useful guidance in setting appropriate goals but also indicate the areas in which a country is more or less developed. Furthermore, the assessment of farmers' knowledge of circular economy principles in agriculture is a crucial step for understanding their readiness to adopt

circular agricultural practices. Through the questionnaire, farmers were asked to identify the importance level of various circular practices that were ascertained through stakeholders' meetings and literature review. The defined circular practices consisted of regenerative agriculture actions, waste recycling, circular feed production, integrated systems (livestock and crop production), farming network collaboration, and water conservation & recycling.

## 4. RESULTS

Farmers constitute the main gear of the food and economic chain, so their role in adopting and implementing new sustainable methods in the framework of the circular economy is important (Picuno, 2016). To encourage farmers to adopt circular agricultural practices, policymakers should consider various factors that facilitate transformation toward more sustainable food systems. Besides the economic constraints and institutional limitations, knowledge gaps are among the factors that can hinder the uptake of circular agriculture initiatives (Silvius et al., 2023).

Knowledge and advice are fundamental components that can enable farmers and other value chain actors to start thinking about introducing "circularity" in the food system. In this context, through a descriptive statistic survey, it was defined the level of farmers' knowledge and awareness of the concept of "circularity" and their expectations related to the implementation of circular practices.
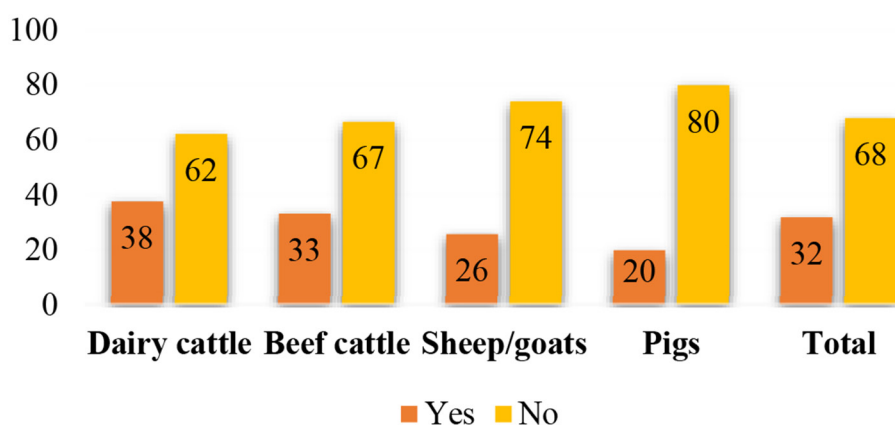


**Figure 1.** Level of awareness of the circular economy concept
**Source:** Own research

Results showed that 32% of farmers involved in livestock production were aware and had knowledge of the concept of circular economy and its benefits. After analyzing the response rate according to the type of livestock farm, farmers involved in cattle production scored the highest level of awareness on "circularity" (38%), Figure 1. In addition, farmers who were aware and well informed on the "circular approach" were asked to provide their opinion on the principles that best suits the concept of "circularity". Among eleven principles selected through a systematic literature review, the most familiar concept articulated from them was the one that defined circular economy as an approach associated with the "reduction of waste through reuse, recycling and regeneration of edible products". From the share of farmers that were informed on the principle of circular economy, 82% implemented traditional circular economy practices in their farms, Figure 2.

Various authors define the circular economy as a promising strategy for saving relevant resources and reducing the negative environmental impacts of agricultural activities, while at the same time improving economic performance (Kuisma & Kahiluoto, 2017; Stegmann et al., 2020).
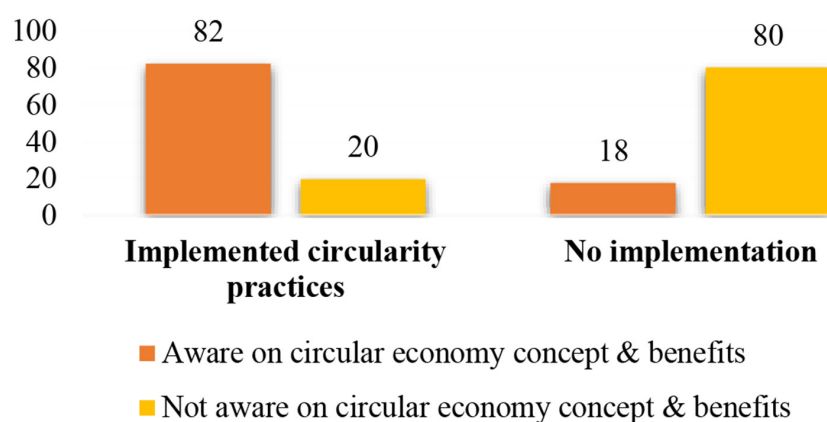
**Figure 2.** Implementation of circular practices
**Source:** Own research

On-farm observations indicate that even though awareness of circular agriculture is growing, still it is not widely understood or practiced by a large part of farmers. Duncan et al. (2023) reviewed some examples of historic circular economy practices applied to smallholder agriculture, while Ashish and Amandeep (2023), examined the revolutionary potentials of circular economy ideas. Accordingly, to understand the potential of implementation, farmers were asked to assess the importance level of various circular practices in livestock farming, Table 3.

**Table 3.** Level of employing circular economy practices in livestock farming

| Circular practices | Not important (%) | Neutral (%) | Important (%) | Mean | Std. deviation | Min | Max |
|---|---|---|---|---|---|---|---|
| Rotational grazing | 27.8 | 19 | 53.2 | 2.25 | 0.867 | 1 | 3 |
| **Cover crops rotation** | **11.9** | **30.2** | **57.9** | **2.46** | **0.7** | 1 | 3 |
| **Organic waste & crop leftovers** | **8.7** | **17.5** | **73.8** | **2.65** | **0.636** | 1 | 3 |
| Animal bones meal | 42.9 | 31.7 | 25.4 | 1.83 | 0.811 | 1 | 3 |
| Brewery grains | 50 | 19.8 | 30.2 | 1.8 | 0.877 | 1 | 3 |
| Oilseed cakes from vegetable oil | 74.6 | 17.5 | 7.9 | 1.33 | 0.62 | 1 | 3 |
| **Animal dung as crop fertilizer** | **3.2** | **6.3** | **90.5** | **2.87** | **0.419** | 1 | 3 |
| Farm waste used by other farms | 40.5 | 38.9 | 20.6 | 1.8 | 0.759 | 1 | 3 |
| Water conservation | 18.3 | 23 | 58.7 | 2.4 | 0.782 | 1 | 3 |
| Wildlife corridors | 31.7 | 21.4 | 46.8 | 2.15 | 0.877 | 1 | 3 |

**Source:** Own research

The results of the survey indicated that farmers prioritized the importance of using animal dung as crop fertilizer (mean = 2.87), organic waste and crop leftovers for producing feed for livestock animals (mean = 2.65) and cover crop rotation techniques (mean = 2.46), for enhancing soil fertility, capturing carbon and improving biodiversity in agricultural systems. Farmer awareness and perception of the "circular approach" indicated that although some of them had successfully implemented circular agriculture practices, adoption remains challenging due to varying degrees of uncertainty and resilience of the agri-food systems in Albania.

## 5.   CONCLUSION

The study assessed the current state of the circular economy in Albania, identified the level of farmers' awareness related to the concept and benefits of the circular economy, and defined the potential of the transition toward circularity. The results acknowledged the need for accessing the necessary tools and knowledge for embracing circular practices in livestock farms.

Investing in farmer's education and designing programs that incorporate the holistic approach of circular economy, improving the regulatory framework and increasing substantially the level of subsidies is crucial for fostering a sustainable mindset and preparing future generations to embrace circular practices on farm operations. However, it can be concluded that even though "the way toward circular agriculture appears very challenging ", there is a strong case for further developing circular economy practices given the potential benefits for the environment, society, and the economy.

For accelerating the transition towards the circular economy, collaboration between farmers, governmental bodies, educational institutions, and actors of the value chain appears to be fundamental.

## Acknowledgment

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# Stock Market Instability and Investor Overreaction

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**Abstract:** *Given the events in 2022, characterised by Russia's invasion of Ukraine, the financial markets were affected by a spiral of mistrust and overreactions in various geographies. The primary objective of this study is to evaluate the serial autocorrelation of stock prices on the capital markets of Slovakia (SAX 16), Hungary (BUX), Russia (MOEX), the Czech Republic (PRAGUE SE PX) and Slovenia (SBI TOP), during the period from 24 February 2022 to 23 November 2023, encompassing the Russian invasion of Ukraine in 2022. In the Hungarian (BUX) and Slovakian (SAX 16) markets, price movements are not random but influenced by their historical prices, suggesting investor overreactions to new information. On the other hand, in the markets, Russia (MOEX), the Czech Republic (PRAGUE SE PX) and Slovenia (SBI TOP), price movements show a positive correlation with their histories, indicating more predictable patterns in investor behaviour.*

## 1. INTRODUCTION

The efficient market hypothesis has argued that share prices reflect a rational assessment of all available information. In this context, obtaining abnormal returns, i.e. returns that exceed expectations, based on information in the public domain, is considered an arduous task for investors. However, a substantial body of academic studies undertaken since the 1980s has suggested that the efficient market hypothesis does not accurately align with the reality experienced in the financial markets (Bondt & Thaler, 1987; Choi & Jayaraman, 2009).

The studies published by De Bondt and Thaler (1985) and Bondt and Thaler (1987) demonstrate the feasibility of achieving abnormal returns over an extended time horizon through a strategy of investing in stocks that have performed unfavourably in the past (i.e. extreme initial losers), while simultaneously adopting a short-selling position comparing to those that have performed remarkably well (extreme initial winners). The authors above maintain that such a "contrary" approach to the conventional investment pattern is capable of generating superior returns due to the tendency of investors to overreact to available information, which results in a context of exacerbated optimism and pessimism in the financial market.

In a complementary way, De Bondt and Thaler (2016) validate this evidence of systematic reversals of stock prices that register extreme gains or losses in the long term, i.e. previous losers significantly outnumber previous winners. More recently, Dias et al. (2023) analysed the efficiency

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of digital currency markets to understand the level of serial autocorrelation in the prices of these assets. The authors show that these unregulated markets have positive and negative serial autocorrelation, meaning that there is evidence that investors have overreacted to the information that reaches the market.

Following the events of 2022, characterised by Russia's invasion of Ukraine, the financial markets were affected by a spiral of mistrust and overreactions in various geographies. This study aims to assess the serial autocorrelation of stock prices on the capital markets of Slovakia (SAX 16), Hungary (BUX), Russia (MOEX), the Czech Republic (PRAGUE SE PX) and Slovenia (SBI TOP) from 24 February 2022 to 23 November 2023. This article contributes significantly to the existing literature on overreaction behaviour in Central and Eastern European capital markets by introducing a new modelling approach devoid of specific threshold parameters. In contrast to previous investigations, which adopt statistical modelling of overreactions involving the selection of one or more arbitrary parameters, the analysis is based on representing the price overreaction using price changes as a function of 16-day lags.

This study is organised into five sections. Section 2 presents a Literature Review of articles on the overreaction hypothesis in international financial markets. Section 3 describes the methodology and data. Section 4 contains the results. Section 5 concludes.

## 2. LITERATURE REVIEW

The rapid integration of new information into securities prices is a fundamental characteristic of an efficient market. In such a market, prices quickly and exhaustively reflect new information, and there is no chance of gaining an advantage by using already public information. As a result, the market constantly adapts to new information, and security prices change accordingly (Fama, 1965, 1970).

Beyond the premise that market data is accessible and free of charge, the Efficient Markets Hypothesis (EMH) also postulates the rationality of market agents, assuming that they act in such a way as to maximise their interests. In this context, decisions are expected to be made considering all available information without being influenced by emotions or irrational factors. However, recent studies have questioned this assumption, showing that emotional aspects and other psychological elements can significantly impact the formulation of financial decisions (De Bondt & Thaler, 1985, 2012).

According to the theory proposed by De Bondt and Thaler (1985), mean reversion in share prices occurs due to exaggerated responses from investors. On the other hand, Chen and Zhu (2005), in their study of the Chinese stock market, suggest that investors tend to react disproportionately, interpreting good news positively and exaggerating the negativity of bad news. On the other hand, Daynes et al. (2013) performed a study on overreaction in the UK stock market, using cumulative abnormal return and holding period return methodologies in calculating long-term returns. The use of cumulative abnormal returns largely corroborates the results of De Bondt and Thaler (1985), while the use of holding period returns finds no evidence of overreaction. It is argued that the paper's main results provide further evidence of efficiency in its weak form in the UK stock market.

The authors Borgards and Czudaj (2020) examined the prevalence of overreactions in the prices of twelve cryptocurrencies compared to the US stock market. The authors found evidence

that price overreactions are highly prevalent in the cryptocurrency market across all frequencies, strongly supporting the overreaction hypothesis. This result is broadly comparable for the cryptocurrency and stock markets despite both markets being fundamentally different. Similarly, author Saji (2023) tested this price reversal behaviour of stock markets in the Indian context. Consistent with previous evidence on market overreactions, the study concludes that losers outperform previous winners over a portfolio formation period of one to two years. The research observes the persistence in investors' overreactions to price trends in both upward and downward price movements in the Indian stock market during the post-financial crisis of 2008.

The study of overreactions in financial markets is of great importance, as it provides significant evidence about investor behaviour and asset price patterns. Understanding how and why investors tend to react disproportionately to certain events or news can help predict price movements and identify investment opportunities. Furthermore, this analysis can provide information on the efficiency of the markets and help formulate more informed and effective trading strategies. By recognising overreaction trends, investors can make more informed decisions and avoid being influenced by irrational behaviour that can lead to results that cause potential losses in their portfolios.

## 3. MATERIALS AND METHODS

### 3.1. Data

The sample comprises the price indices of the Central and Eastern European capital markets, namely the stock indices of Slovakia (SAX 16), Hungary (BUX), Russia (MOEX), the Czech Republic (PRAGUE SE PX) and Slovenia (SBI TOP), for the period from 24 February 2022 to 23 November 2023. The quotes are daily, expressed in the local currency of each country, to avoid distortions caused by exchange rates, and will be obtained from the Thomson Reuters Eikon platform.

### 3.2. Methodology

This research began with an analysis of the main descriptive statistics and the Jarque and Bera (1980) adherence test to determine whether the data followed a normal distribution. Then, graphs were produced with returns to assess the evolution of the capital markets analysed. Following this, the Levin et al. (2002) panel test was used to estimate stationarity.

The question of whether the price series of stock indices in Central and Eastern Europe show serial autocorrelation will be addressed using the variance ratio methodology proposed by Lo and MacKinlay (1988). This methodology can be classified as a parametric test. The weak form of the efficient market hypothesis states that it is not possible to predict future prices based on historical prices. The author Rosenthal (1983) argues that if a market is efficient in its weak form, then there should be no linear dependence between lagged returns in either the statistical sense (absence of autocorrelation) or the economic sense (non-existence of positive returns after taking transaction costs into account).

## 4. RESULTS

Figure 1 illustrates the trajectory of the returns of the stock indices of Slovakia (SAX 16), Hungary (BUX), Russia (MOEX), the Czech Republic (PRAGUE SE PX) and Slovenia (SBI TOP)

over the period from 24 February 2022 to 23 November 2023. Visual analysis of the data reveals significant variations in the stock indices, reflecting the volatility that characterised these markets, particularly in the first months of 2022, coinciding with the Russian invasion of Ukraine. This evidence is also corroborated by the authors Pardal et al. (2021), Horta et al. (2022), Dias et al. (2022), and Chambino et al. (2022) for the Central and Eastern European markets.



**Figure 1.** Evolution, in returns, of the Central and Eastern European capital markets between 24 February 2022 and 23 November 2023

**Source:** Own elaboration

Table 1 provides a summary of the main measures of descriptive statistics for the daily time series returns of the stock indices of Slovakia (SAX 16), Hungary (BUX), Russia (MOEX), the Czech Republic (PRAGUE SE PX) and Slovenia (SBI TOP) from 24 February 2022 to 23 November 2023. When examining the statistics, it can be seen that the mean returns are predominantly positive, except for the PRAGUE SE PX (-2.13e-05) and SAX 16 (-0.00053) stock indices. Asymmetry and kurtosis were estimated to assess the normality of the time series distributions, revealing values different from the reference values (asymmetry 0 and kurtosis 3). The capital markets analysed show negative asymmetries, with the MOEX stock index standing out (-8.0634).

Regarding kurtosis, the most significant value is observed in the Russian market (144.6809), indicating non-Gaussian distributions. The Jarque and Bera (1980) test was used to validate these observations, resulting in the rejection of the null hypothesis at a significance level of 1%.

**Table 1.** Summary table of the main descriptive statistics for the Central and Eastern European capital markets for the period from 24 February 2022 to 23 November 2023

| | BUX | MOEX | PRAGUE SE PX | SAX 16 | SBI TOP |
|---|---|---|---|---|---|
| **Mean** | 0.00038 | 0.0001 | -2.13e-05 | -0.00053 | 2.22e-05 |
| **Std. Dev.** | 0.01531 | 0.02559 | 0.01054 | 0.0083 | 0.0093 |
| **Skewness** | -1.5917 | -8.0634 | -0.7249 | -2.4030 | -1.4747 |
| **Kurtosis** | 15.3393 | 144.6809 | 7.8419 | 24.4233 | 14.3977 |
| **Jarque-Bera** | 3085.480 | 386337.57 | 485.394 | 9159.13 | 2633.57 |
| **Probability** | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| **Observations** | 456 | 456 | 456 | 456 | 456 |

**Source:** Own elaboration

Assessing stationarity in the time series of the Central and Eastern European capital markets, specifically in the stock indices of Slovakia (SAX 16), Hungary (BUX), Russia (MOEX), the Czech Republic (PRAGUE SE PX) and Slovenia (SBI TOP), between 24 February 2022 and 23 November 2023, involved the panel root test proposed by Levin et al. (2002). Logarithmic transformation followed by first-order differencing was applied to the time series to ensure stationarity, aiming to achieve white noise characteristics (zero mean; constant variance). The stationarity hypothesis was validated by rejecting the null hypothesis at a significance level of 1%, as shown in Table 2.

**Table 2.** Summary table of the Levin et al. (2002) unit root test for the Central and Eastern European capital markets between 24 February 2022 and 23 November 2023

| Method | | | | Statistic | | Prob.** | |
|---|---|---|---|---|---|---|---|
| Levin, Lin & Chu t* | | | | -74.0859 | | 0 | |
| Intermediate results on D(UNTITLED) | | | | | | | |
| **Series** | **2nd Stage Coefficient** | **Variance of Reg** | **HAC of Dep.** | **Lag** | **Max Lag** | **Bandwidth** | **Obs** |
| **D(BUX)** | -0.9556 | 379140.5594 | 40675.1888 | 0 | 17 | 25 | 454 |
| **D(MOEX)** | -0.8627 | 1216.4064 | 445.7495 | 0 | 17 | 33 | 454 |
| **D(PRAGUE SE PX)** | -0.9212 | 166.3600 | 2.2802 | 1 | 17 | 411 | 453 |
| **D(SAX 16)** | -1.1087 | 8.1591 | 0.2590 | 0 | 17 | 61 | 454 |
| **D(SBI TOP)** | -0.8614 | 92.3838 | 9.0889 | 0 | 17 | 35 | 454 |
| | **Coefficient** | **t-Stat** | **SE Reg** | **mu*** | **sig*** | | **Obs** |
| **Pooled** | -0.9382 | -44.3644 | 1.0043 | -0.5 | 0.5 | | 2269 |

**Note:** ** Probabilities are computed assuming asymptotic normality.

**Source:** Own elaboration

Answering the research question, that is, if the markets analysed show serial autocorrelation involved using the non-parametric test developed by Wright (2000), which includes the rankings test and the sign test for heteroscedastic series.

Figure 2 shows the results of Lo and MacKinlay (1988). The results indicate that in Hungary (BUX) and Slovakia (SAX 16) capital markets, price movements are not random but rather influenced by historical prices. This suggests that investors can overreact to new information, meaning that positive or negative news can trigger extreme price movements as investors become overly optimistic or pessimistic. On the other hand, in the markets of Russia (MOEX), the Czech Republic (PRAGUE SE PX) and Slovenia (SBI TOP), price movements are positively correlated with

their histories, indicating the presence of more predictable patterns in investor behaviour. In conclusion, the analysis of serial autocorrelation in regional financial markets highlights the importance of understanding investor behaviour and how they react to new information. This can help investors adjust their strategies to better suit the specific conditions of each market.
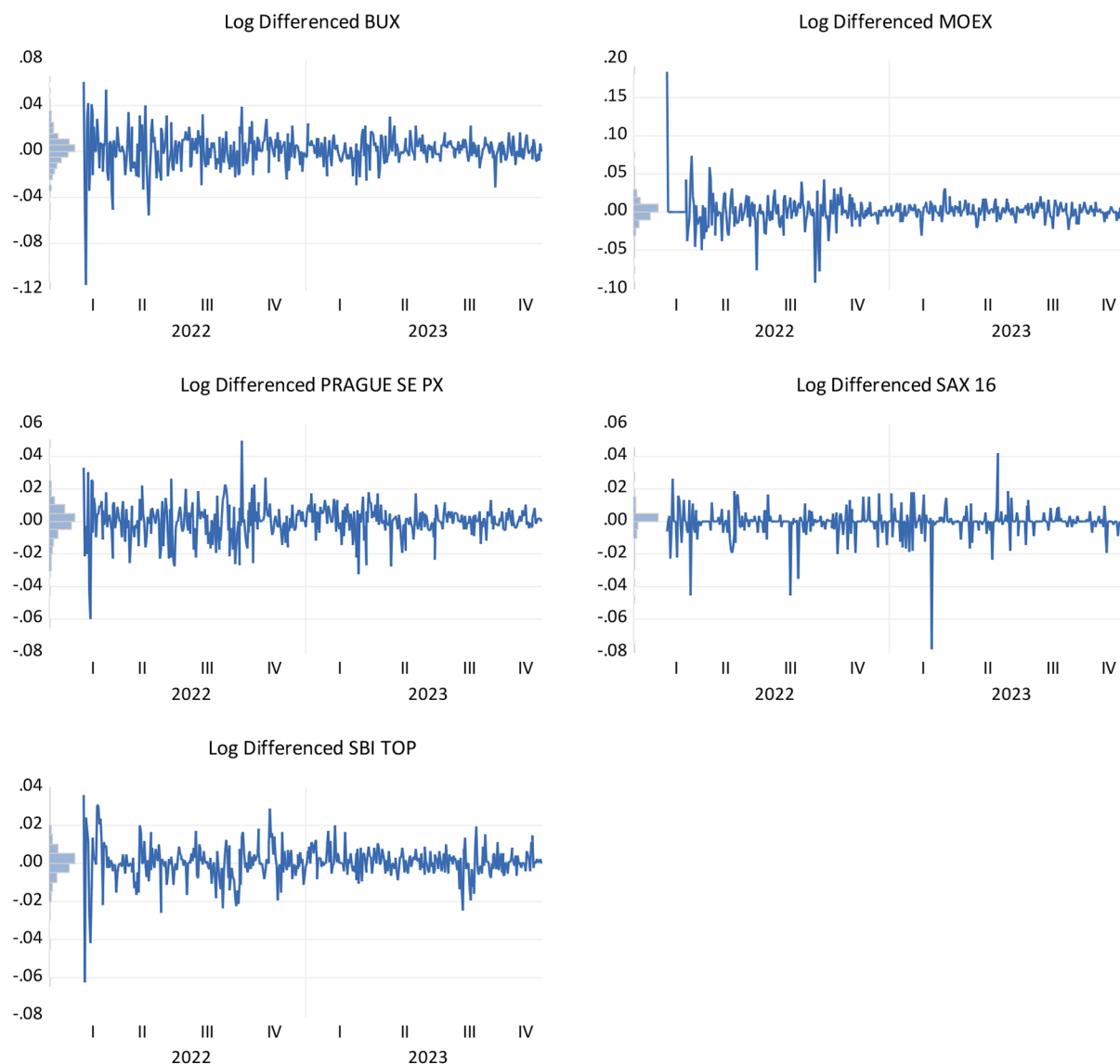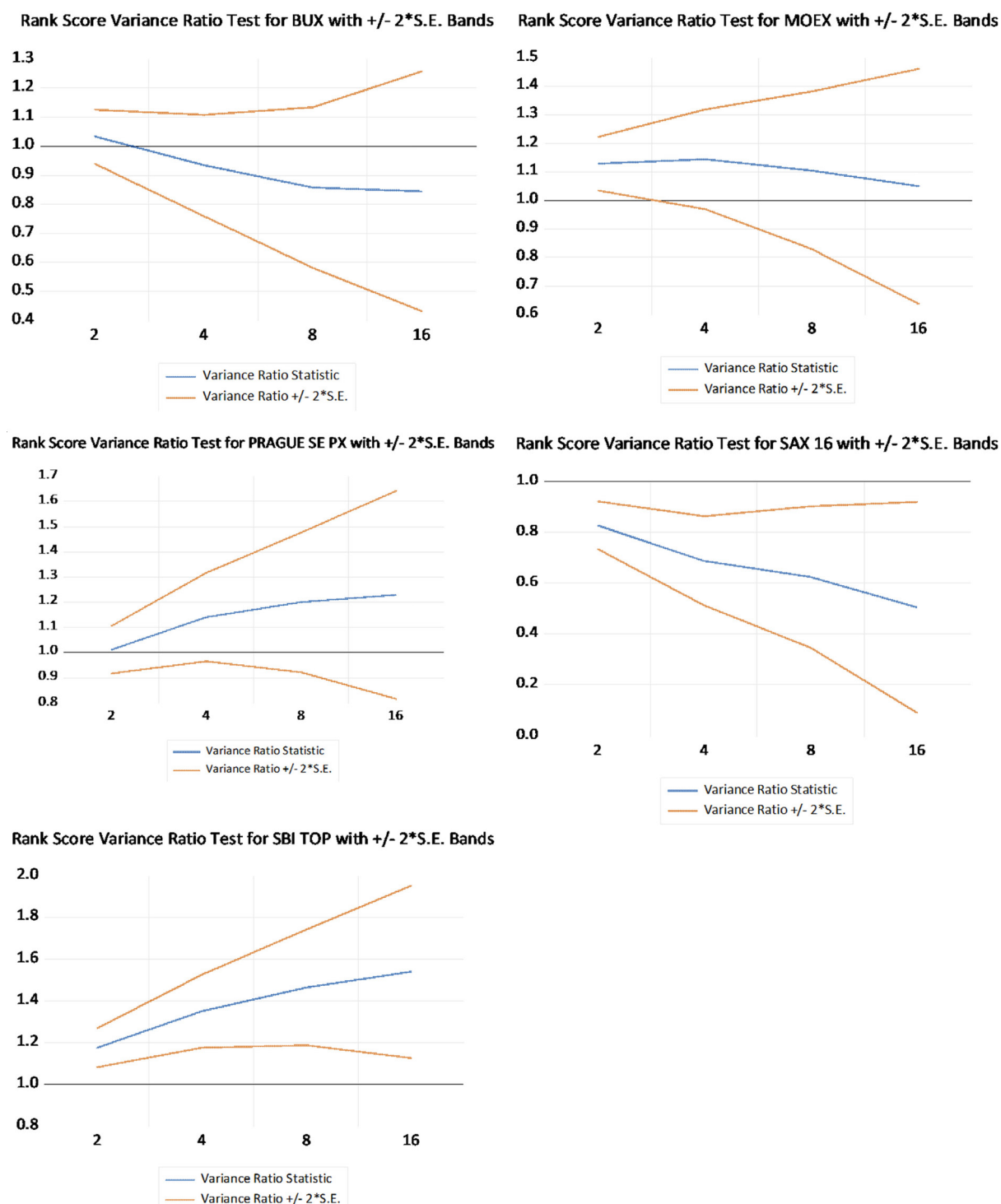


**Figure 2.** Lo and MacKinlay (1988) serial autocorrelation tests for the Central and Eastern European capital markets between 24 February 2022 and 23 November 2023

**Source:** Own elaboration

## 5. CONCLUSION

The main objective of this study was to assess the serial autocorrelation of share prices on the capital markets of Slovakia (SAX 16), Hungary (BUX), Russia (MOEX), the Czech Republic (PRAGUE SE PX) and Slovenia (SBI TOP) from 24 February 2022 to 23 November 2023, including the period coinciding with the Russian invasion of Ukraine in 2022.

The results revealed that in Hungary (BUX) and Slovakia (SAX 16) capital markets, price movements do not follow a random pattern but are influenced by their historical prices. This suggests that investors in these regions may overreact to new information, resulting in extreme price movements when exposed to positive or negative news. On the other hand, in the markets of Russia (MOEX), the Czech Republic (PRAGUE SE PX) and Slovenia (SBI TOP), price movements showed a positive correlation with their histories, indicating the presence of more predictable patterns in investor behaviour.

In conclusion, the analysis of serial autocorrelation in regional financial markets highlights the importance of understanding investor behaviour and their reactions to new information. This understanding can be crucial for investors to adjust their strategies and better adapt to the specific conditions of each market, mitigating the risks associated with overreactions and taking advantage of predictable behaviour patterns.

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# Deep Diving Into Sustainable Stock Markets Connectivity Analysis

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**Abstract:** *This study's purpose is to assess the safe haven characteristics of the precious metals Gold, Handy & Harman, Silver and Handy & Harman concerning the clean energy indices S&P Global Clean Energy and WilderHill Clean Energy, testing this evidence through the contagion phenomenon. The results indicate that Gold and Silver act as safe-haven assets with clean energy indices such as the WilderHill Clean Energy Index and the S&P GLOBAL CLEAN ENERGY. So, investors tend to favour Gold and Silver over clean energy indices in periods of uncertainty in the financial markets due to their identified stability and security. This perception is attributed to the historical function of precious metals as stores of value and their vast industrial applications and acceptance as forms of payment. These results have important implications for investment decisions, especially during periods of volatility and uncertainty in the financial markets.*

## 1. INTRODUCTION

Crises have affected international markets in recent decades, resulting in significant structural breaks. In these stressful moments, investors often search for assets that offer stability and preserve value. Among these assets, commodities stand out, especially precious metals such as Gold and Silver, which have acquired particular relevance. Gold has consolidated its position as a safe haven throughout history due to its tangible nature and confidence in its ability to maintain value, becoming popular with investors during financial uncertainty. Meanwhile, although often seen as a more affordable alternative to Gold, Silver plays a crucial role in investment portfolios during crises. In practical terms, its dual function as a safe haven asset and in industrial applications contributes to its demand, even in complex economic scenarios (Dias & Carvalho, 2020, 2021; Teixeira et al., 2022).

Two predominant perspectives emerge based on the existing literature on clean energy markets. The first focuses on the substitution elements between clean and conventional energies, as discussed by various authors, notably the studies by Dias, Horta, et al. (2023) and Dias et al. (2023). According to this approach, an increase in oil prices motivates investors in the energy sector to migrate to cleaner sources, increasing the use of these sources. This change boosts the returns of the clean energy industry, reflecting positively on the performance of this sector's shares in the financial markets. On the other hand, the second perspective, known as the

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decoupling hypothesis, emphasises that clean and conventional energy operate in separate markets and should not be directly compared, as discussed by different authors (Dias, Alexandre, et al., 2023). This perspective suggests that the dynamics of these two types of energy are independent, indicating that changes in oil prices may not have the same direct impact on the trends and performance of clean energy markets compared to conventional energy markets (Ahmad, 2017; Attarzadeh & Balcilar, 2022; Dawar et al., 2021).

This study significantly contributes to the existing literature for several reasons. Firstly, several previous studies have focused primarily on the relationship between clean energy markets and crude oil, neglecting to analyse the interactions between clean energy stocks and commodities such as Gold and Silver. By focussing on these precious metals, this study broadens the scope of the literature by exploring whether these assets can act as safe havens during specific events, such as the one that occurred in 2022. In practice, by considering precious metals as safe haven assets during specific events, such as those in 2022, this study fills a gap in the literature by providing a more comprehensive view of investment strategies during periods of market volatility. Furthermore, by exploring the relationship between clean energy stocks and precious metals, this study can provide evidence for investors when they want to diversify their portfolios and mitigate risks during financial instability.

The article is organised as follows: section 2 covers the literature related to the topic. In section 3, details of the data are presented, and the econometric methods used in the study are described. In section 4, the empirical results are illustrated. In section 5, the main conclusions of the study and future directions are outlined.

## 2. LITERATURE REVIEW

Recently, Gold and Silver have been seen as crucial safe haven assets during periods of high volatility in the financial markets. These assets have been recognised for their stability and value preservation. Gold is especially valued for its tangible and universally accepted nature, while Silver, although seen as a more affordable alternative, is also sought after due to its industrial utility and status as a store of value. Understanding the role of these precious metals as safe havens is essential for investors during financial crises, directly influencing investment strategies in an ever-changing global economic environment.

Elie et al. (2019) and Huang and Chang (2021) analysed the safe haven characteristics of Gold and other assets in the face of turbulence in international financial markets. Elie et al. (2019) examined the potential roles of Gold and crude oil as safe-haven assets in clean energy stock indices. The empirical results show that both crude oil and Gold are weak safe haven assets for clean energy indices. In a complementary way, Huang and Chang (2021) examined whether Gold and China's government bonds are safe haven assets in the Shanghai capital market. The authors highlight that bonds and Gold can be a weak safe haven.

In 2022, the authors Gustafsson et al. (2022) and Erdoğan et al. (2022) analysed the safe haven properties of energy metals and found them to be accurate in favour of clean energy indices. Gustafsson et al. (2022) indicate statistically significant non-linear relationships between the markets under study. All energy metals, except cobalt, have a significant positive link with clean energy stock indices, and these associations are maintained during episodes of high volatility. Meanwhile, Erdoğan et al. (2022) show a unidirectional causal link between clean energy

stock returns and precious metal prices in the centre and left tail of the distribution. On the other hand, there is strong feedback between the variables in the right tail of the distribution. These results show that clean energy stock prices have an advantage in affecting precious metal prices, and precious metals cannot be used as hedging assets for investments in clean energy stocks.

More recently, the authors Ustaoglu (2023) and Dias, Alexandre, et al. (2023) evaluated assets such as Gold and cryptocurrencies in terms of whether they have the properties of a safe haven during the war between Russia and Ukraine. Ustaoglu (2023) shows that Gold is only a diversifier during the Russia-Ukraine war. Bitcoin is a strong hedge against wheat but a weak hedge against natural gas. On the other hand, Gold is a safe haven for the capital markets of Italy and Russia, as well as the MSCI Europe index and natural gas during extreme market falls during the war. Additionally, the authors Dias, Alexandre, et al. (2023) show that clean energy stock indices can offer a viable safe harbour for cryptocurrencies classified as 'dirty' due to their excessive energy consumption. However, the precise associations differ depending on the cryptocurrencies analysed.

Recent events in 2020 and 2022 have highlighted the urgent need to study the interconnections between clean energy stock indices and hedging assets. This analysis aims to improve the effectiveness of sustainable energy investment portfolios and mitigate the risks associated with these events, thereby strengthening the resilience of investments in the face of climate change and disruptive events.

## 3. MATERIALS AND METHODS

### 3.1. Data

Data from the daily price indices of clean energy stocks, including the S&P Global Clean Energy and WilderHill Clean Energy, along with the precious metals Gold, Handy & Harman, Silver and Handy & Harman, were used in the development of the study. The aim is to investigate whether precious metals have the characteristics of safe haven assets in response to the Russian invasion of Ukraine in 2022.

The sample was divided into two periods to assess the impact of specific events on market relations: Pre-Conflict (from 1 January 2021 to 23 February 2022) and Conflict (from 24 February 2022 to 23 November 2023). The latter period includes the armed Conflict between Russia and Ukraine in 2022. The data was taken from the Thomson Reuters Eikon platform and has been represented in local currency to avoid distortions in the results due to exchange rate fluctuations. This method of analysis aims to provide insights into the possible relationship between precious metal price movements and volatility in the clean energy markets during the 2022 conflict.

### 3.2. Methodology

This research began with the characterization of the sample, using the main measures of descriptive statistics and the Jarque and Bera (1980) adherence test, which postulates the normality of the data. The panel unit root test of Hadri (2000) was used to validate the assumption of stationarity of the time series. The unconditional correlations were estimated, and their significance was examined to answer the research question: whether Gold and Silver have the characteristics of a safe haven from clean energy stock indices. One way of testing the statistical significance of the correlation coefficient is to use the $t$-statistic, which follows the $t$ distribution,

with $n - 2$ degrees of freedom, where $r$ is the correlation coefficient between two series and $n$ is the number of observations.

To test whether the matrix of correlation coefficients is globally different from the identity matrix, the likelihood ratio test suggested by Pindyck and Rotemberg (1990) was used. Forbes and Rigobon's (2002) two-sample heteroscedasticity t-test assessed the existence or absence of risk transmission between markets. This methodology posits the null hypothesis that the correlation in the Stress sub-period is lower or equal to the correlation in the Tranquil sub-period against the alternative hypothesis that the correlation is higher and significant in the Stress period. Rejection of the null hypothesis has economic significance for the contagion phenomenon; non-rejection shows interdependence. In terms of the model, the estimation steps are as follows:

$$H_0 = r_{i,j}^t \geq r_{i,j}^0 \tag{1}$$

$$H_1 = r_{i,j}^t < r_{i,j}^0 \tag{2}$$

Where $r_{i,j}^t$ is the correlation coefficient between market $i$ and market $j$ during period $t$.

In the previous hypotheses, the Stress sub-period corresponds to the value '1', while the Tranquil sub-period corresponds to the value' 0'.

The use of this test considers Fisher's (1930) transformation, which in turn is applied to the correlation coefficients in such a way that they have an approximately normal distribution, in asymptotic terms, with mean $\mu_t$ and variance $\sigma_t^2$, defined as follows:

$$\mu_t = \frac{1}{2} \ln \left( \frac{1+r_{i,j}^t}{1-r_{i,j}^t} \right) \tag{3}$$

$$\sigma_t^2 = \frac{1}{n_t - 3} \tag{4}$$

The test statistic is determined from

$$U = \frac{\bar{\mu}_1 - \bar{\mu}_0}{(\sigma_0^2 + \sigma_1^2)^{\frac{1}{2}}} \tag{5}$$

where $\mu_t$ and $\sigma_t^2$ are the transformed sampling mean and variance. The test statistic follows a normal distribution, with mean 0 and variance 1.

## 4. RESULTS

Figure 1 shows the trajectory of indices related to the clean energy sector, such as the S&P Global Clean Energy and WilderHill Clean Energy, along with the precious metals Gold and Silver between 1 January 2021 and 23 November 2023. By analysing the graphs, it is possible to see significant declines in the year 2022, especially in precious metals. Moreover, the indices related to clean energy showed a downward trend from 2021 until the end of the sample period.

The results of the main descriptive statistics for the clean energy stock indices, including the S&P Global Clean Energy and WilderHill Clean Energy, along with the precious metals Gold, Handy & Harman, Silver, Handy & Harman are in Table 1. The mean returns are predominantly negative for the clean energy indices, except for the Gold market, which shows positive mean returns.

Similarly, the WilderHill Clean Energy index has the highest standard deviation, indicating greater volatility compared to the other indices. The S&P Global Clean Energy has the most positive asymmetry, indicating a tendency for heavier tails to the right in the distribution of returns.
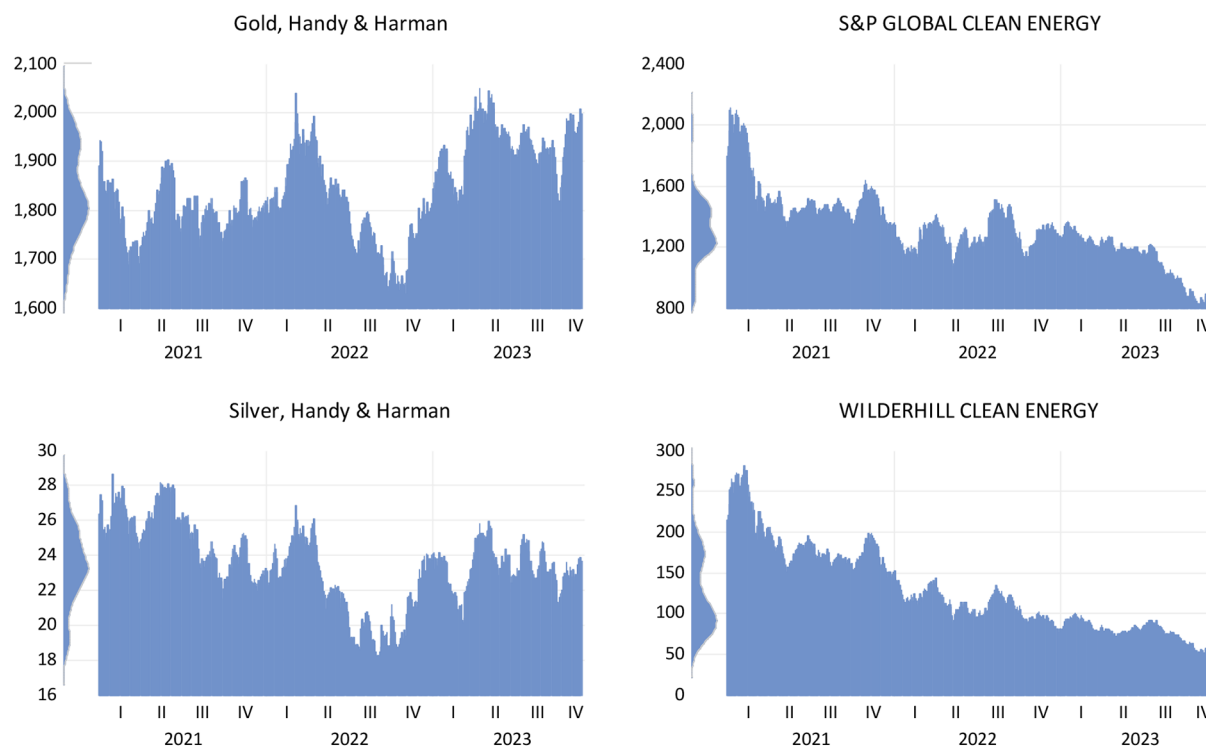
**Figure 1.** Evolution of the clean energy and precious metals indices
from 1 January 2021 to 23 November 2023
**Source:** Own elaboration

Gold stands out for its more pronounced negative asymmetry. Concerning kurtosis, it was found that all the parameters had values different from 3, indicating a non-normally distributed distribution of returns. The WilderHill Clean Energy index (9.8536) stands out for its more pronounced kurtosis. These results suggest that, during the period analysed, clean energy indices tend to have negative performance and greater volatility, while the Gold market stands out for its positive average returns and more pronounced negative asymmetry.

**Table 1.** Summary table of the main descriptive statistics for the clean energy and precious metals indices from 1 January 2021 to 23 November 2023

|  | GOLD | S&P GLOBAL CLEAN ENERGY | SILVER | WILDERHILL |
|---|---|---|---|---|
| **Mean** | 7.25e-05 | -0.00093 | -0.00014 | -0.00180 |
| **Std. Dev.** | 0.0087 | 0.0179 | 0.0171 | 0.03106 |
| **Skewness** | -0.2023 | 0.3230 | 0.0194 | 0.2667 |
| **Kurtosis** | 4.7951 | 4.9354 | 4.9658 | 9.8536 |
| **Observations** | 755 | 755 | 755 | 755 |

**Source:** Own elaboration

The stationarity assumption was validated for the clean energy stock indices, namely S&P Global Clean Energy, WilderHill Clean Energy and the precious metals Gold, Handy & Harman, Silver, Handy & Harman, by applying Hadri's (2000) panel unit root test, which postulates stationarity in the null hypothesis.

The results show that the time series have unit roots when estimating the original price series. Logarithmic transformation in the first differences was necessary to achieve stationarity, showing that the null hypothesis is not rejected and there is white noise (mean 0 and variance 1).

**Table 2.** Summary table, in returns, of Hadri's (2000) panel unit root test for the clean energy and precious metals indices from 1 January 2021 to 23 November 2023

Null Hypothesis: Stationarity

| Method | | Statistic | Prob.** |
|---|---|---|---|
| Hadri Z-stat | | -1.5141 | 0.9350 |
| Heteroscedastic Consistent Z-stat | | -1.48498 | 0.9312 |

Intermediate results on D(UNTITLED)

| Series | LM | Variance HAC | Bandwidth | Obs |
|---|---|---|---|---|
| D(GOLD, HANDY & HARMAN) | 0.09280 | 247.6809 | 4 | 754 |
| D(S&P GLOBAL CLEAN ENERGY) | 0.04164 | 766.0697 | 16 | 754 |
| D(SILVER, HANDY & HARMAN) | 0.05558 | 0.1569 | 1 | 754 |
| D(WILDERHILL CLEAN ENERGY) | 0.03388 | 17.1395 | 13 | 754 |

**Source:** Own elaboration

Understanding whether there are volatility spillovers between the S&P Global Clean Energy, WilderHill Clean Energy, and Gold, Handy & Harman, Silver, Handy & Harman precious metals stock indices was possible by estimating the unconditional correlations and their statistical significance.

One way of testing the statistical significance of the correlation coefficient is to use the $t$-statistic, which follows the $t$ distribution with $n - 2$ degrees of freedom, where $r$ is the correlation coefficient between two series and $n$ is the number of observations. The likelihood ratio test is used to test whether the matrix of correlation coefficients is globally different from the identity matrix, as Pindyck and Rotemberg (1990) suggested. Table 3 shows the unconditional correlation coefficients of the t-statistic for the pre-Conflict sub-period, and it is possible to see nine correlation coefficients with significant positive signs. The Wilderhill - S&P GLOBAL index pairs (0.8291) have the highest positive coefficient, the Gold - Wilderhill pair is not statistically significant, while the Gold - S&P GLOBAL pair (0.1272) has a low correlation coefficient. In addition, we can also see that Silver has low correlations with the S&P GLOBAL (0.2062) and Wilderhill (0.1522). These results show that precious metals have the characteristics of a safe haven with clean energy stock indices.

**Table 3.** Unconditional correlations between clean energy indices and precious metals for the period 1 January 2021 to 23 February 2022

| Correlation | GOLD | S&P GLOBAL | SILVER | WILDERHILL |
|---|---|---|---|---|
| GOLD | ***** | 0.1272** | 0.6867*** | 0.0437 |
| S&P GLOBAL | 0.1272** | ***** | 0.2062*** | 0.8291*** |
| SILVER | 0.6867*** | 0.2062*** | ***** | 0.1522*** |
| WILDERHILL | 0.0437 | 0.8291*** | 0.1522*** | ***** |

**Note:** The asterisks ***. **. * indicate statistical significance at 1%. 5% and 10%, respectively.

**Source:** Own elaboration

Table 4 shows the unconditional correlation coefficients from the t-statistic for the Russia-Ukraine Conflict sub-period, revealing that the correlations have significantly decreased to negative correlation coefficients, clearly showing that precious metals such as Gold and Silver have safe haven properties. A two-sample heteroscedasticity t-test from Forbes and Rigobon (2002) was used to validate this evidence.

**Table 4.** Unconditional correlations between clean energy indices and precious metals for the period from 24 February 2022 to 23 November 2023

| Correlation | GOLD | S&P GLOBAL | SILVER | WILDERHILL |
|---|---|---|---|---|
| GOLD | ***** | -0.3574*** | 0.8715*** | -0.3685*** |
| S&P GLOBAL | -0.3574*** | ***** | -0.1697*** | 0.8188*** |
| SILVER | 0.8715*** | -0.1697*** | ***** | -0.1965*** |
| WILDERHILL | -0.3685*** | 0.8188*** | -0.1965*** | ***** |

**Note:** The asterisks ***. **. * indicate statistical significance at 1%. 5% and 10%, respectively.

**Source:** Own elaboration

The two-sample heteroscedasticity *t*-test described by Forbes and Rigobon (2002) validated the results obtained through the unconditional correlations between the clean energy stock indices and the precious metals Gold and Silver. The results in Table 5 suggest a significant relationship between these assets, especially regarding perceived security. In practice, the results indicate that Gold and Silver have safe haven characteristics in relation to the clean energy stock indices, represented by the WilderHill Clean Energy Index and the S&P GLOBAL CLEAN ENERGY. This means that in periods of uncertainty or turbulence in the financial markets, investors tend to look for a safe haven in assets such as Gold and Silver, to the detriment of more volatile or risky assets such as clean energy indices.

**Table 5.** Summary table, in returns, of the Forbes and Rigobon (2002) two-sample heteroscedasticity t-test for clean energy indices and precious metals from 1 January 2021 to 23 November 2023

| | t Stat | P(T<=t) one-tail | Results |
|---|---|---|---|
| Gold \| S&P Global | -0.7375 | 0.3567 | No contagion |
| Gold \| Silver | -0.6880 | 0.4578 | No contagion |
| Gold \| WilderHill | -0.6287 | 0.2356 | No contagion |
| S&P Global \| Gold | -0.4685 | 0.1156 | No contagion |
| S&P Global \| Silver | -0.6308 | 0.2679 | No contagion |
| S&P Global \| WilderHill | -0.5667 | 0.2145 | No contagion |
| Silver \| Gold | -0.2952 | 0.2589 | No contagion |
| Silver \| S&P Global | -0.5258 | 0.3298 | No contagion |
| Silver \| WilderHill | -0.4087 | 0.2659 | No contagion |
| WilderHill \| Gold | -0.4909 | 0.2896 | No contagion |
| WilderHill \| Silver | -0.7076 | 0.4678 | No contagion |
| WilderHill \| S&P Global | -0.6555 | 0.4194 | No contagion |

**Note:** The asterisks ***. **. * indicate statistical significance at 1%. 5% and 10%, respectively.

**Source:** Own elaboration

This interpretation suggests that investors perceive Gold and Silver as assets that offer stability and security in times of market instability, which can be attributed to various reasons. For example, Gold and Silver are often considered to be value reserves that protect investors against currency devaluation and inflation. Furthermore, these precious metals have industrial applications and are widely accepted as payment forms, contributing to their attractiveness as safe-haven assets. In conclusion, it can be confirmed that Gold and Silver play an essential role as safe-haven assets for clean energy indices, which can influence investors' investment and resource allocation decisions, especially in periods of volatility and uncertainty in the financial markets.

## 5. CONCLUSION

The main focus of this study was to assess the safe haven characteristics of the precious metals Gold and Silver and their variants for the clean energy indices, represented by the S&P Global Clean Energy and the WilderHill Clean Energy Index.

The test to validate the presence of this contagion phenomenon revealed that Gold and Silver act as safe-haven assets with clean energy indices. Investors' preference for Gold and Silver in times of uncertainty in the financial markets, to the detriment of clean energy indices, is significant.

These results have critical pragmatic implications for investment decisions. Investors and portfolio managers should consider the dynamics of the precious metals market when developing asset allocation strategies, especially in periods of volatility and uncertainty in the financial markets.

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# Heating Oil Prices and the Chaotic Growth Model

Vesna Jablanovic[1] (iD)

**Abstract:** *This paper analyzes the local stability of the created chaotic heating oil prices growth model. It is proved that the logistic map is a useful framework for creating the chaotic heating oil prices growth model. Also, it is important to analyze the local growth stability of heating oil prices in the period 2002-2024. This paper confirms the existence of convergent fluctuations in heating oil prices in the observed period.*

## 1. INTRODUCTION

Carollo (2011) identifies the important changes that have occurred within the oil industry over the past four decades. Qin et al. (2020) analyze the time-varying interaction between the El Niño phenomenon and the oil market by applying the wavelet analysis. The empirical results confirm that the El Niño index (NINO) has a negative influence on oil price (OP) in the long run. In turn, oil price positively affects NINO in the medium term.

Aguilera and Radetzki (2015) provide an analysis of the price of oil. Two reasons have motivated their choice of oil: (i) the importance of oil in the world economy; and (ii) the "indispensability" of oil in the short and medium term, so the oil demand is inelastic concerning price. Reboredo (2012) analyzes oil prices and exchange rates for the period 4 January 2000 until 15 June 2010. He uses two measures of dependence: correlations and copulas. There are two main conclusions: (i) oil price–exchange rate dependence is in general weak, and (ii) there is no extreme market dependence between oil prices and exchange rates. Arezki et al. (2017) create a simple macroeconomic model of the oil market. Their analysis suggests that a period of prolonged low oil prices is likely to be followed by a period of high oil prices.

Indjehagopian et al. (2000) explore the German and French heating oil markets during the period from January 1987 to December 1997. They establish the relationships between German and French monthly heating oil prices in the observed period. The authors examine the asymmetric reaction of domestic prices to positive and negative variations in exchange rates and the Rotterdam spot quotation. Zafeiriou et al. (2019) analyze consumer confidence in heating oil prices. Ederington and Lee (2002) analyze the heating oil futures market. Ding et al. (2023) confirm that the covariance between exchange rates and oil prices are important factor in explaining and predicting inflation in China.

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## 2. THE MODEL

The modified chaotic price growth model is applied in this paper (Jablanovic, 2022). The chaotic heating oil price growth model is presented by the following equations:

$$D_t = \alpha P_t - \beta P_t^2 \qquad \alpha > 0, \beta > 0 \tag{1}$$

$$S_t = \gamma P_t \qquad \gamma > 0 \tag{2}$$

$$P_{t+1} - P_t = \rho (D_t - S_t) \quad \rho > 0 \tag{3}$$

Where $P_t$ – heating oil price; $S_t$ – supply function of heating oil; $D_t$ – demand function for heating oil; $\rho$ - the adjustment coefficient; $\alpha$, $\beta$ - the coefficients of the heating oil demand function; $\gamma$ - the coefficient of the heating oil supply function.

(1)  defines the demand function for heating oil;

(2)  defines the supply function of heating oil;

(3)  determines the relation between the increase in heating oil price and the surplus of demand for heating oil.

By substitution one derives:

$$P_{t+1} = [1 + \rho (\alpha - \gamma)] P_t - \rho \beta P_t^2 \qquad \alpha, \beta, \gamma, \rho > 0 \tag{4}$$

It is important to introduce p as $p = P/P^m$. Then, it is obtained that

$$p_{t+1} = [1 + \rho (\alpha - \gamma)] p_t - \rho \beta p_t^2 \qquad \alpha, \beta, \gamma, \rho > 0 \tag{5}$$

Now, the chaotic growth model (5) is obtained. The logistic map explains chaotic behavior.

The logistic equation (6)

$$z_{t+1} = \pi z_t (1 - z_t), \qquad \pi \in [0, 4], \ z_t \in [0, 1] \tag{6}$$

leads to chaotic behavior. Further, the following identification (7) is applied.

$$z_t = \frac{\rho \beta}{[1 + \rho(\alpha - \gamma)]} p_t \text{ and } \pi = [1 + \rho (\alpha - \gamma)] \tag{7}$$

Using (5) and (7) we obtain:

$$z_{t+1} = \frac{\rho \beta}{[1 + \rho(\alpha - \gamma)]} p_{t+1} = \frac{\rho \beta}{[1 + \rho(\alpha - \gamma)]} \{[1 + \rho(\alpha - \gamma)] p_t - \rho \beta p_t^2\} = \rho \beta p_t - \frac{(\rho \beta)^2}{[1 + \rho(\alpha - \gamma)]} p_t^2$$

On the other hand, using (6) and (7) we obtain:

$$z_{t+1} = \pi\, z_t\, (1 - z_t) = [1 + \rho(\alpha - \gamma)]\frac{\rho\beta}{[1 + \rho(\alpha - \gamma)]}\, p_t \left\{1 - \frac{\rho\beta}{[1 + \rho(\alpha - \gamma)]}\, p_t\right\} =$$

$$= \rho\beta\, p_t - \frac{(\rho\beta)^2}{[1 + \rho(\alpha - \gamma)]}p_t^2$$

Thus, we have that iterating (5) is the same as iterating (6) using (7).

## 3. EMPIRICAL EVIDENCE

The chaotic, logistic model (8) is employed. The focus of analysis in this paper is the heating oil price growth stability in the period 2002-2024.



**Figure 1.** Interactive chart showing the monthly closing price for No. 2 Heating Oil: New York Harbor since 1986. The prices shown are in U.S. dollars. The current price of heating oil as of March 04, 2024, is **2.60** per gallon.

**Source:** Macrotrends, n.d.

In this sense,

$$p_{t+1} = \pi\, p_t - \upsilon\, p_t^2 \qquad \pi, \upsilon > 0 \tag{8}$$

where p - heating oil price, $\pi = [1 + \rho\,(\alpha\text{-}\gamma)]$ and $\upsilon = \rho\,\beta$, where $\rho$ - the adjustment coefficient; $\alpha$, $\beta$ - the coefficients of the heating oil demand function; $\gamma$ - the coefficient of the heating oil supply function.

Now, the model (8) is estimated (see Table 1).

**Table 1.** The estimated model (8): Heating Oil Prices, 2002-2024

R=0.64130 Variance explained 41.129-6%

| N=22 | $\pi$ | $\upsilon$ |
|---|---|---|
| **Estimate** | **2.192236** | 1.285175 |
| **Std. Err.** | 1.126996 | 0.915581 |
| t(19) | 1.945204 | 1.403673 |
| **p-level** | 0.066700 | 0.176550 |

**Source:** Own calculations

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According to the logistic equation, for $2 < \pi < 3$ fluctuations of heating oil price converge to $z = (\pi - 1) / \pi$. Namely, the estimated $\pi$ value confirms continuously convergent fluctuations of the heating oil prices in the observed period.

## 4. CONCLUSION

This paper creates the chaotic heating oil price growth model. The focus of this paper is the heating oil price growth stability in the period 2002-2024. This paper proposes a new method to analyze the heating oil price growth stability.

In this sense, it is important to determine the value of the coefficient $\pi = [1 + \rho (\alpha - \gamma)]$, where, $\rho$ - the adjustment coefficient; $\alpha$ - the coefficient of the heating oil demand function; $\gamma$ - the coefficient of the heating oil supply function.

The estimated value of the coefficient $\pi$ is **2.192236.** This result confirms continuous convergent fluctuations of the heating oil prices in the observed period.

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# Analysis of Financing Sources for SMEs In Croatia

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**Abstract:** *This paper presents sources of financing for small and medium-sized enterprises (SMEs) in Croatia. The paper presents the problems that the companies have when financing the development of SMEs, and then traditional and alternative types of enterprise financing in the Republic of Croatia.*

*This paper researches the scientific and professional literature over the past decade (before, during and after the COVID-19 crisis), primarily drawing from the Web of Science database and utilizes an analytical approach to detect issues accompanying financing sources for SMEs in Croatia. The analysis focuses on quantitative research methods to review selected articles based on keywords such as entrepreneurship, financing sources, and SMEs. Only articles aligning with the specific aims of this paper will undergo in-depth examination. The obtained results from the analysis of sources of financing will be presented through examples from business practice.*

## 1. INTRODUCTION

Small and medium-sized enterprises (SMEs) are the backbone of economies worldwide, playing a crucial role in innovation, creating jobs, and fostering economic growth. These entities are increasingly provided with financial opportunities, primarily in the form of state incentives, fostering an environment where citizen self-employment is strongly encouraged. As per the Strategy of development of entrepreneurship in the Republic of Croatia 2013 – 2020 (The Official Gazette, 136/2013) while 54% of citizens consider self-employment desirable, 80% perceive it as unattainable. This is attributed to factors such as insufficient knowledge among individuals embarking on entrepreneurial ventures, cumbersome bureaucracy including the high risk of bankruptcy and navigating potential commercial disputes through legal channels, and the foremost challenge of securing initial financial resources.

An additional problem for SMEs is the difficult access to bank loans, which is supported by research conducted in the world as well as in the Republic of Croatia. This problem is related to excessive insurance that is present in bank loans, extensive documentation and ultimately the cost of financing, which is high. Also, access to capital is difficult due to the absence of well-off venture capital investors (Ploh, 2017). The expressed problems also related to the availability of qualified staff or experienced managers, regulations and laws (Harc, 2019).

This paper aims to explore whether Croatia has undergone a transition from traditional financing methods to newer forms of financing, analyzing existing research and professional papers. After reviewing previous research, the author presents the methodology and results of the research. At the end of the paper, the conclusion, observed limitations in the research and implications for future research are presented.

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## 1.1. Research Methodology and Expected Scientific Contribution

This research uses citation databases widely used in systematic literature reviews. The digital platform Web of Science (WOS) was searched for keywords (sources of financing, SME, Financing sources, Financing strategy) in publications for the years 2015-2019 (before COVID-19) and 2020 – 2024 (after COVID-19). The author collected data for bibliometric analysis on 02 April 2024, including time horizon published papers on the WOS platform, for the period 2015-2019 and 2020-2024. In total, 365 documents comprise literature reviews before COVID – 19 and 383 documents comprise literature reviews after COVID – 19. Only articles aligning with the aims of this paper undergo in-depth examination. The publications were analyzed based on similarities. Several bibliometric techniques were applied, including analysis of co-words as a technique used to identify the main themes in both periods.

## 1.2. Results of Bibliometric Analysis

The most productive year was 2023, but there was increased interest in this field over time, so scientific production has been increasing for the last few years. This demonstrates an interest of researchers in conducting research in this field. The financial landscape is becoming increasingly complex, with new financial sources for SMEs. This complexity drives the need for more research to address the challenges and opportunities for entrepreneurs.



**Figure 1.** Co-word analysis
**Source:** Own research

Co-word analysis (Figure 1) was done in Biblioshiny software and indicated most occurrences of words: 1) before COVID–19 performance (27), investment (24), determinants (22), firms (21), capital structure (20) and 2) after COVID - 19 performance (55), trade credit (46), impact (43), decision (30). This analysis was based on keywords and a summary of papers within a defined database. The research in the period from 2015-2019 is focused on topics related to financial performance, investment decisions, factors influencing outcomes (determinants), characteristics of firms, and the structure of capital, and for the period 2020-2024 indicates a heightened interest in understanding the impact of COVID-19 on financial performance, trade credit practices, the overall impact on businesses and economies, and decision-making processes. These findings could suggest a transition in research priorities and areas of interest within the field of finance, with a greater emphasis on understanding the implications of the pandemic on various financial aspects, such as credit, decision-making, and overall performance.

The scientific production of various countries shows how different countries approach scientific production in the topic. The country's scientific production measures the number of authors'

appearances by country affiliations. In terms of publications, leading the top 10 nations for the period from 2015 to 2019, China is dominating with 50 publications, followed by Poland in second place with 33, and the USA in third place with 31. Croatia is in 13 positions with 7 publications. Leading the top 10 nations for the period from 2020 to 2024 is China in the first position with 132 publications, followed by the USA in second place with 25, and Poland in third place with 21 publications. Croatia is in 23 positions with 3 publications. The shift in rankings for scientific production among countries from 2015-2019 to 2020-2024 indicates some changes in scientific output and possibly shifts in research priorities, especially for Croatia.

The results revealed an uneven distribution of scientific papers among countries. The analysis considers co-authorship, meaning that not all authors necessarily come from the same country. It includes international collaborative networks, reflecting the contribution of researchers from various countries to collaborative projects.

## 2.   FINANCING SOURCES FOR SMES

Securing adequate financing is a crucial step in launching an entrepreneurial venture. SMEs can access financing through a variety of sources, which can be categorized into traditional and contemporary methods. Historically, the traditional channel has stood out as the primary avenue for SMEs to access external financing, especially in Europe. The reliance on corporate debt was highlighted amidst the challenges brought about by the Covid-19 pandemic. In the European Small Business Finance Outlook is emphasized that European SMEs have relied on public financial assistance, such as public guarantee schemes, to meet their financing needs (Kraemer-Eis et al., 2023). Also, a European survey from 2023 found that "*only 35% of SMEs' investments were funded by external sources, which is not enough to cover the massive financing required for the transformation*" (European Survey, 2023).

Entrepreneurs face obstacles in raising capital and financing the development of SMEs due to insufficient access to the financial market (information asymmetry), high transaction costs, excessive taking of short-term loans to finance long-term operations, over-indebtedness and lack of collateral (Sanga & Aziakpono, 2023). Using samples of SMEs from 135 developing and emerging economies, Chit and Rizov (2023) found that SMEs use diversified financing sources. They also found that financially free SMEs use fewer financing sources, and usually, these are credit. Xiang et al. (2021) found that SMEs that are financially constrained, innovative and with long banking relationships are usually seeking new financing methods. Schenk (2015) supports the idea of SMEs combining both traditional and newer financing sources.

During the COVID-19 pandemic digital finance platforms became an available credit option for SMEs, because there were not many traditional banks that offered online credits (Elgammal et al., 2023). Zhao et al. (2021) found that the behaviour of traditional banks in the post-COVID-19 period did not differ for SEMs that had a previous good relationship with their financers. The COVID-19 era underscored the significance of fostering dependable relationships with traditional banks while simultaneously initiating a transition toward embracing innovative financial methods.

Traditional methods (bank loans, FFF, business angels) typically serve as the initial steps for SMEs to secure funding, often marking the entry point for entrepreneurs into the business realm. Bank loans are one of the oldest traditional financial sources for SMEs. For example,

the main source of financing Portuguese small and medium-sized entities (SMEs) is bank loans (Sequeira et al., 2024). Friends, Family and Fools (FFF) are common financing sources for entrepreneurs who try to collect finance from people who are closest to them. Business angels are investors who play a pivotal role in bringing entrepreneurs' business visions to fruition. They provide support by imparting their expertise, wisdom, and financial backing, catering not only to startups but also extending assistance to established businesses encountering temporary financial challenges. Rupeika-Apoga and Saksonova (2018) in their research paper expose trends in alternative financing in the EU. Even though there are new alternative financing sources, the empirical evidence found that "*the most available financing sources except banking products are Friends and Family and different state (including EU grants) support programmes, venture capital and business angels*". In the Croatian legal framework, these funds are termed as risk capital funds with a private offering. They primarily target high-risk projects that hold the promise of substantial returns on investment.

With the evolution of investment practices, new financing methods/innovative for SMEs have emerged. Crowdfunding is becoming a more popular method for new and small enterprises. Crowdfunding is usually an alternative source of financing for creative ventures such as art, cultural events, books, and film projects (Rijanto, 2022). Dikaputra et al. (2019) found that SMEs usually attract crowdfunding from potential funders with extrinsic motivations as a reward. Shao et al. (2022) found that artificial intelligence technologies, such as machine learning and deep learning, improve financing controls for small, non-state-owned firms in China. Artificial intelligence finance enhances the efficiency of financial services by creating digital financial platforms and expanding the breadth and depth of financial services (Shao et al., 2022). The research results of Gopal and Schnabl (2022) suggest that "*finance companies and FinTech lenders are major suppliers of credit to SMEs and played an important role in the recovery from the 2008 financial crisis*".

## 3. FINANCING SOURCES FOR SMES IN CROATIA

The institutional environment has a strong influence on the entrepreneurial activity of research objects, and it is necessary to invest great efforts to make that environment stimulating and to make the operation of that environment adequate. In the Strategy of development of entrepreneurship in the Republic of Croatia 2013 – 2020 (The Official Gazette, 136/2013), the Republic of Croatia recognized the problems of entrepreneurship that are related to sources of financing and the general survival of companies on the market. Government and financial institutions need to introduce the mechanisms through which SMEs secure financing. This is pivotal for devising strategies that effectively enhance financial accessibility for SMEs. Two institutions in Croatia offer cheaper sources of financing and guarantees to companies, namely HBOR and HAMAG BICRO. Business Innovation CROatia (BICRO) is a governmental entity dedicated to funding innovative and technological projects. In Croatia, Business angels operate through the CRANE Association (Croatian Business Angels Network, n.d.), serving as a central point where entrepreneurs can seek potential finance for their ideas and projects. This network of private investors in Croatia specializes in backing productive and innovative companies in their early developmental stages. Private equity and venture capital investments play a significant role as strategic drivers for the growth and development of entrepreneurial ventures. The overarching goal of these initiatives is to foster a culture of development and investment within the Republic of Croatia and its surrounding region. Additionally, traditional banks in Croatia extend loans to entrepreneurs either autonomously or in collaboration with the Croatian Bank for

Reconstruction and Development (HBOR), while Croatian entrepreneurs also have access to international investments and EU programs, leveraging their high-quality ideas to attract potential investors from abroad.

Kraemer-Eis et al. (2023) in The European Small Business Finance Outlook found that SMEs in Croatia experienced the largest improvement in SME access to finance conditions. According to Kolaković et al. (2019), "*one in ten companies in Croatia believe that financing is not available at all*". Kovšca et al. (2024) in their research paper conducted on 145 SMEs in Croatia found that entrepreneurship and financing sources demonstrate a higher rate of application of traditional financing methods compared to newer ones.

## 4. FUTURE RESEARCH DIRECTIONS AND CONCLUSION

The analysis of scientific and professional literature highlights that modern financing methods are making significant progress within the global financial environment, which is also exposed within Croatia's business conditions. Based on all the collected information from the available research, this paper contributes to a better understanding of the financing policy.

The Web of Science (WOS) platform serves as an extensive database for bibliometric analyses due to its comprehensive database. However, its usage does come with limitations. Namely, the scope of the investigation is restricted solely to papers published within the WOS platform, thereby excluding potentially valuable insights from publications beyond this platform. Furthermore, while the study provides valuable insights, it lacks concrete empirical evidence. The absence of empirical data could potentially undermine the reliability and validity of the study's conclusions. Future research endeavors should aim to address these limitations by adopting a more inclusive approach to data collection. Exploring publications from diverse platforms and sources beyond WOS would offer a more holistic understanding of the subject matter.

Presented and interpreted results gained through the different methods could be an effective core for extended research in this and similar fields, enriching understanding of this vital feature of contemporary economics. Additionally, to delve deeper into the specific factors influencing the financing sources, researchers should consider interdisciplinary perspectives. By embracing a more holistic and empirically grounded approach, future research can strive to offer comprehensive and actionable insights into different sources of financing SMEs.

### Acknowledgments

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# Evolution of Artificial Intelligence in the Banking Sector: A Systematic Literature Review

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**Abstract:** *The integration of Artificial Intelligence (AI) in the banking sector has revolutionized how financial institutions operate, interact with customers, and manage risks. This systematic literature review explores the evolution of AI applications in banking, highlighting technological advancements, implementation challenges, and future directions. By analyzing research from the past decade, this review provides insights into how AI technologies have transformed banking operations, customer service, and financial products.*

*The banking sector has witnessed significant transformations due to AI, with innovations aimed at enhancing efficiency, customer experience, and security. The introduction of AI in banking is not just a recent phenomenon but a continuous evolution that has accelerated in the past decade, influenced by advancements in machine learning, natural language processing, and data analytics technologies.*

*The evolution of AI in the banking sector is a testament to the transformative potential of technology in finance. While challenges remain, the ongoing advancements in AI promise a future where banking is more efficient, secure, and customer-centric. The continued research and development in AI technologies will be crucial in shaping the next generation of banking services.*

## 1. INTRODUCTION

In today's dynamic banking environment, digital advancements have shifted from being optional to imperative for financial institutions. To remain competitive and meet evolving customer demands, banks must embrace these innovations (Pramanik & Kirtania, 2019).

Artificial intelligence (AI) has emerged as a pivotal driving force behind numerous digital technologies in the contemporary banking landscape (Dwivedi et al., 2021). It catalyzes innovative transformations across banking channels, services, and solutions, including automated teller machines, online banking, mobile banking, check imaging, voice recognition, chatbots, AI investment advisors, and AI credit selectors. (Azevedo et al., 2023). The integration of AI in banking spans various sectors, encompassing front-office, middle-office, and back-office operations (Ramakant, 2022).

Nearly 80% of banks in the USA acknowledge the potential benefits associated with AI, which has brought forth a plethora of opportunities along with challenges AI utilization within the banking sphere has facilitated smoother sales processes, informed the development of robust customer relationship management systems, and expanded capabilities to encompass internal systems and processes (Bueno et al., 2024).

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The term "AI" was coined by John McCarthy in 1956, describing systems capable of rational human-like actions and thinking (Samoili et al., 2020). Following the dot-com bubble burst in 2000, AI's trajectory transitioned towards the Web 2.0 era by 2005, spurred by the surge in data growth and increased accessibility of information (Dwivedi et al., 2022).

Technological progress has paved the way for AI to play a pivotal role in facilitating enterprise cognitive computing, enhancing information analysis speed, achieving precise data outputs, and empowering employees to engage in high-level tasks (Zhang & Dacheng, 2021). However, many corporate leaders still grapple with understanding how to strategically harness AI within their organizations, leading to a lack of strategic plans for AI implementation (Jarrahi et al., 2023).

In this study, we systematically analyze both historical and contemporary literature on the utilization of AI within the banking sector. We aim to gain insights into its past applications and outline potential avenues for future research. While previous systematic literature reviews have explored AI within the management discipline, there remains a gap in the literature concerning the depth of research scope or industry focus. Therefore, our study stands out by specifically concentrating on the banking sector and conducting a more comprehensive analysis utilizing multiple modes of examination.

Considering this, our study endeavors to tackle the following research inquiries:
– What overarching themes and sub-themes arise from previous literature concerning the integration of AI in the banking sector?
– How does the utilization of AI influence the customer journey process within the banking industry, spanning from customer acquisition to service delivery?
– What are the existing gaps in research, and what future trajectories should be explored in this domain?

## 2. METHODOLOGY

### 2.1. Selection of articles

We initiated our Systematic Literature Review (SLR) following established guidelines. Xiao and Watson (2019) begin with database selection and keyword identification via a comprehensive literature review. Research papers were sourced from Web of Science (WoS) and Scopus due to their complementary nature and access to scholarly articles (Abrizah et al., 2013). This selection process aimed to ensure the inclusion of high-quality articles (Kotter et al., 2012). Our search query included terms like "Artificial intelligence," "machine learning," "deep learning," "neural networks," and "Intelligent systems," paired with "Bank," "consumer," "customer," or "user." Keyword selection was guided by prior literature reviews, focusing on various business functions within the banking sector. Initially, we retrieved 5,000 papers, which were subsequently refined by language (English), publication type (article only), and subject area filter ("Management, Business Finance, accounting and Business"), resulting in 500 papers (Azarian et al., 2023).

To maintain a systematic approach and ensure transparent data flow across different stages of the SLR, we adhered to the preferred reporting method, PRISMA (Azarian et al., 2023). Each of the 500 papers was assigned a unique ID number to facilitate differentiation throughout the analysis. The data were organized into columns including "ID number," "database source,"

"Author," "title," "Abstract," "keywords," "Year," Australian Business Deans Council (ABDC) Journals, and keyword validation columns.

Systematic exclusion of papers followed a structured procedure: a) elimination of duplicate papers b) removal of papers not published in ABDC journals to maintain quality standards consistent with recent SLRs (Kraus et al., 2022) c) exclusion of non-consumer-related papers by searching for relevant terms in the title, abstract, and keywords; d) manual relevance check for the remaining papers to ensure alignment with our research objectives, leading to the removal of papers focusing solely on the technical computational process of AI. This meticulous process culminated in the selection of 39 articles for subsequent analyses.

For thematic analysis, we employed both deductive and inductive approaches. Initially, articles were classified into predefined themes, followed by the identification of sub-themes and context for the primary themes. This process involved reviewing previous systematic literature reviews, identifying keywords, and establishing codes (themes) from selected papers. Subsequently, titles, abstracts, and full papers were scrutinized to allocate appropriately within these themes, resulting in the emergence of three primary themes: Strategy, Processes, and Customers.

## 3. FINDINGS

**RQ$_1$:** What are the themes and sub-themes that emerge from prior literature regarding the utilization of AI in the banking industry?

**Strategy.** Within the Strategy theme, early research highlights the potential uses and adoption of AI from an organizational perspective (Borges et al., 2021). Data mining, an integral aspect of AI, has been employed for predicting bankruptcy (Sung et al., 2015), and optimizing risk models (Kotsiantis et al., 2006). The increasing utilization of AI-driven tools for enhancing organizational effectiveness presents greater opportunities for efficiency in financial institutions compared to traditional strategizing and risk model development methods. The sub-theme Organizational use of AI encompasses various activities wherein banks leverage AI to drive organizational value, including the implementation of AI-driven models for predicting outsourcing success (Olan et al., 2022). While AI tools demonstrate effectiveness in driving efficient organizational strategies, challenges persist in implementing AI technologies, such as human resources constraints and organizational culture barriers (Krishnan et al., 2022). Recent literature also discusses challenges associated with AI implementation in banking institutions (Hentzen et al., 2022; Sheth et al., 2022), highlighting the need for sustainable human-machine interactions for successful AI implementation in banking. The sub-theme Challenges with AI addresses a range of challenges organizations face, including the integration of AI into their operations. Akter et al. (2023) delineate key challenges related to human-machine interactions crucial for sustainable AI implementation in banking. While current research mainly focuses on technology aspects, future opportunities lie in adoption and integration. The sub-theme AI and adoption in financial institutions (six papers) investigates motivation and barriers to the adoption of AI technology from an organizational perspective. Saurabh et al. (2022) conceptualize barriers to organizational adoption, including employee apprehension, organizational culture, and budget constraints. Overall, within the Strategy theme, organizational use of AI appears most prominent, emphasizing continued emphasis on technology development over implementation. However, literature discussions related to organizational challenges associated with AI implementation remain limited.

**Processes.** In the Processes theme, following the dot-com bubble burst and the emergence of Web 2.0, research on AI in the banking sector began to surface, possibly spurred by suggestions to employ AI for predicting stock market movements and stock selection. During this phase, AI in the banking literature primarily focused on credit and loan analysis. In the nascent stages of AI implementation, the development of fast and reliable AI infrastructure is deemed essential as a neural network approach to improve loan default and early repayment predictions. Kataria (2021) utilized data mining techniques to analyze credit scores, finding AI-driven data mining to be more effective than traditional methods. Similarly, Sadok et al. (2022) observed machine learning-driven models to be effective in consumer credit risk analysis. The sub-theme, AI and credit, explores the use of AI technologies, such as machine learning and data mining, to enhance credit scoring, analysis, and granting processes. For example, Donepudi (2017) investigated the development of a customer credit scoring model using data mining neural network techniques. Post-2013, research expanded to examine how AI improves processes beyond credit analysis. The sub-theme AI and services encompasses the use of AI for process improvement and enhancement, including institutional applications to optimize internal service processes. For instance, González et al. (2019) studied the use of machine learning to optimize appointment scheduling and reduce service time. Overall, regarding the process theme, our findings underscore the utility of AI in enhancing banking processes, yet there remains a gap in practical research on the applied integration of technology in the banking sector. Additionally, while there is ample research on credit risk, exploration of other financial products remains limited.

**Customers.** In the Customer theme, we observed the growing use of AI as a methodological tool to better comprehend customer adoption of digital banking services. The sub-theme AI and Customer adoption investigate AI's role as a methodological tool in examining customers' adoption of digital banking technologies, including both barriers and motivational factors. For example, Leo et al. (2019) utilized a neural network approach to investigate barriers to internet banking adoption by customers. Beutel et al. (2019) explored factors related to AI-driven technology adoption in the banking sector. Petropoulos et al. (2020) examined drivers of AI-enabled mobile banking service usage. Furthermore, bank marketers leverage AI to better segment, target, and position banking products and services. The sub-theme, AI and marketing explores AI's role in various marketing activities, including customer segmentation, marketing model development, and delivery of more effective marketing campaigns. For example, González et al. (2019) proposed a machine-learning technique for banking customer segmentation and utilized AI-based methods to allocate resources in targeted advertisements. In recent years, there has been a noticeable trend in exploring how AI shapes customer experience. The sub-theme of AI and customer experience investigates AI's role in enhancing the banking experience and services for customers. For instance, Okuda and Shoda (2018) examined the impact of chatbots in banking on customer experience.

From 2013 onward, an increase in the inter-relation between all three areas of Strategy, Processes, and Customers is evident. Since 2016, there has been a surge in research linking the themes of Processes and Customers. Moreover, since 2017, papers combining Customers with Strategy have become more frequent.

**RQ$_2$:** How does AI impact the banking customer's journey?

One of the crucial areas of research, AI in banking, revolves around credit applications and decision-making processes, directly affecting customer accessibility and acquisition.

We extracted future research directions from the articles included in this study. This section outlines the steps for applying for credit solutions online and demonstrates the integration and utilization of AI in the process, with examples from the literature.

**Acquire customer.** We commence with the initial step of customer acquisition, progressing to credit decision-making and post-decision phases. During the acquisition phase, customers are targeted to direct them to the website and convert them into active customers. The frontstage encompasses targeted advertisements tailored to individual customers. For instance, Satheesh and Nagaraj (2021) employed a multi-armed bandit approach for a large retail bank to enhance customer acquisition, proposing a method that enables bank marketers to balance learning from advertisement data with optimizing advertisement investment. At this stage, support processes focus on integrating AI as a methodological tool to better understand customers' banking adoption behaviors, coupled with leveraging machine learning to assess and update segmentation activities. A fundamental aspect at this stage is comprehending the factors influencing online adoption. Manser Payne et al. (2021) utilized a neural network approach to examine factors influencing mobile banking adoption and digital natives' comfort levels and attitudes toward AI-enabled mobile banking activities. Sadok et al. (2022) employed machine learning to categorize bank customers based on their responses to advertisements.

**Visit the bank's website & apply for a credit solution.** During this stage, banking institutions aim to convert website traffic into credit solution applicants. The integration of robo-advisors aids customers in selecting credit solutions for which they qualify, and which suit their banking needs best. Robo-advisors enhance service offerings by assisting customers with selecting appropriate solutions after gathering basic personal financial data and promptly validating it with credit reporting agencies. Belanche et al. (2019) found that information, system, and service quality are pivotal in ensuring a seamless customer experience with chatbots, with personalization moderating these constructs. Robo-advisors possess task-oriented features (e.g., checking bank accounts) alongside problem-solving features (e.g., processing credit applications). Subsequently, data collected undergo continuous examination through machine learning to refine offerings and improve customer experiences. Giudici (2018) employed machine learning to optimize data collected through various channels, aiding in generating appropriate and inclusive credit recommendations. It is imperative to note that while the proposed process offers significant value to customers and banking institutions, many customers remain reluctant to share their information; thus, trust in the banking institution is paramount for enhancing customer experience.

**Receive a decision.** Once data are collected through online channels, data mining and machine learning facilitate analysis and provide optimal credit decisions. At this stage, customers receive credit decisions through robo-advisors. Traditional credit decision approaches typically take up to two weeks, involving submission to the advisory network, underwriting, and communication back to the customer. However, with AI integration, customers can receive instant credit decisions, saving time and feeling more empowered and in control. Decision-making processes should strike a balance between managing organizational risk, maximizing profit, and promoting financial inclusion. For instance, Sadok et al. (2022) utilized machine learning techniques to develop a model predicting customers' credit risk. He also proposed a data mining model to instill greater confidence in credit scoring systems. From an organizational risk perspective, employed a neural network approach to analyze defaulting customer behavior, aiming to minimize credit risk and boost profitability for credit-providing institutions.

**Customer contact call center.** At this juncture, we explore the interaction between humans and AI and found that customers prefer humans for high-complexity tasks, underscoring the importance of integrating human employees for cases requiring manual review, as AI may error misjudge one of the Cs of credit. While AI offers numerous benefits for customers and organizations, Jakšič and Matej (2019) underscores that relationship banking still plays a crucial role in providing a competitive advantage for financial institutions. Integrating AI at this stage can be achieved by optimizing banking channels. For example, banking institutions can enhance service by optimizing appointment scheduling and reducing service time through machine learning.

**General discussion.** Researchers acknowledge the practical use of AI in providing enhanced customer service. Facilities like robo-advisors can aid in product selection, application for banking solutions, and timesaving in low-complexity tasks. As AI proves effective in automating banking processes, enhancing customer satisfaction, and increasing profitability, the field has evolved to address strategic insights. Recent research has focused on examining AI's role in driving business strategies. For instance, researchers have explored using AI to simplify internal audit reports and evaluate strategic initiatives. Recent studies also highlight challenges associated with AI, be it from an implementation, cultural, or organizational resistance perspective. As AI technologies continue to advance in the banking sector, the privacy-personalization paradox has emerged as a crucial research area requiring exploration (Guo & Polak, 2021).

Furthermore, the COVID-19 pandemic has presented numerous challenges in implementing AI in the banking sector. While banks' interest in AI technologies remains high, reduced revenue has led to a decrease in short-term investment in AI technologies emphasizing the need for banking institutions to continue investing in AI technologies to mitigate future risks and enhance integration between online and offline channels. From a customer perspective, COVID-19 has spurred increased adoption of AI-driven services like chatbots, E-KYC (Know Your Client), and robo-advisors (Belanche et al., 2019; Guo & Polak, 2021).

## 4. FUTURE RESEARCH DIRECTIONS AND CONCLUSION

**RQ₃:** What are the current research gaps and future research directions in this field?

In terms of strategy, with the continuous expansion of AI in the banking sector, financial institutions need to explore how internal stakeholders perceive the value of adopting AI, the role of leadership, and various other variables impacting organizational AI adoption. Hence, we suggest that future research delve into the different factors (e.g., leadership role) influencing the organizational adoption of AI technologies. Moreover, as more organizations embrace AI, internal challenges arise. Therefore, we recommend investigating the various organizational challenges (e.g., organizational culture) associated with AI adoption (Castelli et al., 2016).

Regarding processes, AI's impact on credit has been extensively studied since 2005. We propose expanding beyond current models and challenging underlying assumptions by exploring new risk aspects introduced by AI technologies. Additionally, we advocate for the use of more practical case studies to validate new and existing models. Furthermore, the proliferation of AI has spurred further exploration of how internal processes can be enhanced. For example, we suggest examining AI-driven models with other financial products/solutions (e.g., investments, deposit accounts, etc.) (Giudici, 2018).

In the realm of customers, the predominant theories mentioned in the research papers, such as the Technology Acceptance Model (TAM) and diffusion of innovation theories (Mahfuzur et al., 2023) have been extensively explored. However, as customers become more accustomed to AI, it may be crucial to develop theories that transcend mere acceptance and adoption. Hence, we propose investigating different variables (e.g., social influence and user trends) and methodologies (e.g., cross-cultural studies) that influence customers' relationship with AI. The gradual shift toward customer-centric utilization of AI has prompted the exploration of new dimensions of AI that impact customer experience. Moving forward, it is imperative to comprehend the impact of AI on customers and how it can be leveraged to enhance customer experience.

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# Institutional Capacity in Sustainable Policy Implementation – Selected Practice from the Serbian Banking Sector

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**Abstract:** *Sustainability as an official paradigm of both the business community and public sector worldwide is embedded in the strategies of institutions. In order to be ready and capable of acting in this manner, to meet the growing and sophisticated needs of clients, and green transformation of economies, i.e. to make a positive impact, the banking sector is being transformed at the same time experiencing significant changes requiring a proper set of skills. In combination with empirical and desk research, a comparative analysis of selected international practices and the banking sector of Serbia has been done. Research has a goal to analyze relevant components of the institutional capacity as the precondition for the successful implementation of ESG and sustainable finance policies. Findings of the research show that banks allocate lending to various sectors with strong green impact and are active in building and strengthening capacities, including reliance on partnerships and collaborations with other partner institutions, such as international financial institutions and national banking associations. Good practice on Guidelines for capacity strengthening in the implementation of sustainability and ESG policies from the local banking market, as a result of partnership in the banking sector, will be disclosed.*

## 1. INTRODUCTION

Sustainability as an official paradigm of both the business community and public sector worldwide is embedded in the strategies of institutions. Sustainability brings various dimensions that are equally important components of these strategies: from the voluntary practice of corporate social responsibility, principles of responsible banking, principles of responsible investing, Paris Agreement, UN Agenda Sustainable Development Goals, to the recent regulatory framework that is imposing new sustainable practices, such as reporting, risk assessment, etc.

The financial sector is also in this mainstream. Besides having an impact on stakeholders by financing their needs, the financial and particularly banking sector is playing a relevant role in supporting clients in their transition to a green and sustainable economy, with the nonfinancial (advisory, educational) role, as well.

To be ready and capable of acting in this manner, to meet the growing and sophisticated needs of clients, and green transformation of economies, i.e. to make a positive impact, the banking sector is being transformed at the same time experiencing significant changes. The requirement of sustainability has put significant importance on the banking sector and private sector finance worldwide in order to provide strong financial support to the green transformation of the economies. However, the incorporation of environmental, social, or governance (ESG) dimensions in financial decision processes, calls for a new set of institutional capacities, policies and practices of ESG and sustainability that are present as a cross-cutting issue affecting the whole bank as an organization.

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The motivation for the research presented in this paper is based on several emerging trends in practice and the academic spectrum:

i. Sustainability became a main paradigm of both the public and private sectors. It is embedded in the agendas of operational levels, as well as in the pillars of strategic development. Sustainability is very closely linked to sustainable development, circular economy, green transition and other similar concepts which are integrally considered in this paper;

ii. Growing needs and requirements to implement policies related to environmental, social and governance aspects. All these aspects, known as ESG, play an important role both for the bank as the institution that creates impact (impact materiality) and are subject of various impacts from outside in perspective (Financial Materiality). Besides these impacts that matters banks' activities, users of financial services are taking more and more care about ESG matters, and particularly youth as users and potential users of financial services;

iii. It is important to know the situation and needs of the local market and the proper response to support its needs.

The aims of this research are twofold:

I - to analyze relevant components of the institutional capacity as the precondition for the successful implementation of the ESG and sustainable finance policies.

II - To disclose some efficient methods of fostering capacities of institutions, via the case study of selected practices in the banking sector of Serbia and its partnerships with international financial institutions.

Hypothesis one: International good practice in sustainable finance capacity strengthening can be successfully adapted to local market characteristics.

A combination of empirical and desk research is applied. Besides the literature review, interviews and surveys are used in the research. Also, comparative analysis is applied: based on the international best practices of forms and approaches in strengthening capacities, and local market position and needs in ESG implementation in Serbia. Based on the identified situation of the market, analysis of appropriate forms and tools for strengthening capacity that is tailor-made and locally needed is conducted. It resulted in policy-level document (Guidelines) recommendations for good practice.

## 2. SUSTAINABILITY AS A PARADIGM AND NEW BENCHMARK

### 2.1. Literature Review

Sustainable Development (SD) became a widely accepted policy objective following the release of the report of the World Commission on Environment and Development (WCED) in 1987. Sustainable development has been defined in many ways, but the most frequently quoted definition is from the document "Our Common Future", also known as the Brundtland Report:

"Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (United Nations, 1987).

Sustainability as an official paradigm of both the business community and public sector worldwide is embedded as a strategy and or/policy of institutions, processes, products and services. Sustainability brings various dimensions on the voluntary and (more and more) regulatory basis in the business and financial sector, which are equally important components of these strategies:

i.   Voluntary practices of corporate social responsibility.
ii.  UNEPFI Principles for Responsible Banking (UNEPFI, 2024).
iii. Principles for responsible investment (PRI, 2024).
iv.  Paris Agreement, as a global convention, aims to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. Paris Agreement entered into force on 4 November 2016, and to this date, 194 Parties and the EU have signed the Agreement.
v.   UN Agenda Sustainable Development Goals (SDGs) adopted in 2015 and approved by governments/public sectors worldwide - 17 SDGs to be implemented by 2030 are equally relevant for public and private sectors (United Nations Framework Convention on Climate Change, 2015).
vi.  Circular Economy is a concept connected with sustainable development. In 2017, the United Nations Industrial Development Organization stated that *The circular economy is a new way of creating value, and ultimately prosperity. It works by extending product lifespan through improved design and servicing, and relocating waste from the end of the supply chain to the beginning—in effect, using resources more efficiently by using them over and over, not only once* (UNIDO, 2017). It is a system of resource utilization where reduction, reuse and recycling of materials prevails, cutting down waste to a minimum and with the use of biodegradable products recycling the rejected products back to the environment.
vii. The emerging regulatory framework is imposing new sustainable practices, such as non-financial reporting, risk assessment, and above all ESG aspects.

Particularly today, many of these aspects are frequently being researched, such as Sustainable Development Goals as a culture with long-lasting origins (Sachs, 2012), through the assessment of sustainable development practice (Hardi & Zdan, 1997) to the weaknesses of the systems of its implementation worldwide (Sharachchandra, 1991). The private sector, and particularly the financial sector is called to support these agendas and activities with its financial and non-financial support. To meet the objectives of the Paris Agreement and SDGs Europe alone has identified a yearly financial gap of more than EUR 180 billion to finance policies and investments necessary to keep the global temperature in line with the objectives of the Paris Agreement. It is more than obvious, that without the private sector, the funding gap cannot be closed. Given that around two-thirds of the European economy is financed by the banks, banks play, and will continue to play a crucial role in the transition to a more sustainable future acting as investors, capital providers, and capital intermediaries (European Banking Federation, 2019, p. 4).

## 2.2. Financial Sector and Sustainability

The requirement of sustainability has put significant importance on the banking sector and private sector finance worldwide to provide strong financial support to the green transformation of the economies. The financial sector and particularly the banking sector itself is also in this mainstream. Besides having an impact on stakeholders by financing their needs, the financial and particularly banking sector is playing a relevant role in supporting clients in their transition to a green and sustainable economy, with a non-financial (advisory, educational) role, as well.

Sustainable Finance therefore resulted in the banking sector and it is being deployed in practice intensively, as well as in emerging regulation and academic research. Sustainable finance may also be considered as the policy arm of the paradigm of financing growth, as a part of the Capital Markets contribution to public sector efforts, by channeling private investments in a way that would take into consideration environmental, social, and governance issues (Sredojević & Sredojević, 2021, p.138).

### 2.3. How Is Strengthening Capacity Related to Sustainability?

In supporting the green transition of the economies banking sector is experiencing the same transformation itself in many ways - since policies and practices of ESG and sustainable finance have become a cross-cutting issue affecting the whole organization (bank etc). In addition, efficient implementation of environmental, social, or governance (ESG) considerations in financial decision-making, requires a whole new spectrum of personal capabilities, skills and organizational capacities. They are needed in all areas where ESG and sustainable finance opportunities are applicable for business expansions. As analyzed by a group of authors, Despite years of donor country engagement, developing countries' efforts to fight climate change and its consequences remain stifled by important capacity gaps (Casado Asensio et al., 2022).

Based on that, adequate skills and capacities are needed also in the areas of sustainable financing in the banking sector related to various financial products, such as:
- Financing renewable energy,
- Environmental credit cards,
- Environmental venture capital i.e. financing green buildings,
- Loans for clean manufacturing technology,
- Sustainable leasing,
- Green mortgage loans,
- Green bonds,
- Insurance of liability for environmental damage,
- Environmental loans for small and medium-sized businesses.

As a cross-cutting issue, sustainable finance, sustainability and ESG will soon be embedded in all functions in banks. Therefore, personnel dealing with various activities in banks and particularly with clients, do need to be equipped with a proper set of skills and competences to achieve effective and efficient implementation of sustainable and ESG policies. However, sometimes, training in capacity development projects may be subject to criticism (Lubell & Niles, 2019, p. 129); execution of training programmes can have challenges because the majority of trainings are designed in a workshop set-up (Cundill et al., 2014, p. 131). Therefore, proper training forms and content should be considered with full attention.

### 3. SELECTED PRACTICE FROM THE BANKING SECTOR OF SERBIA – STRENGTHENING CAPACITIES THROUGH PARTNERSHIPS OF LOCAL AND INTERNATIONAL BEST PRACTICES

### 3.1. International Cooperation of the Association of Serbian Banks and International Finance Corporation

The Association of Serbian Banks (ASB) as a national banking association, was established in 1921. All banks operating in Serbia are members of the banking association. The mission of the ASB is the continuous improvement of the conditions for banking operations and activities at the domestic and international levels.

In 2021, the cooperation agreement between the Association of Serbian Banks and the International Finance Corporation IFC was signed on the strengthening of capacity for the implementation of ESG and sustainable finance through education and other initiatives. Within this cooperation, various activities have been conducted, such as:

i.     Providing global online education at the global level.
ii.    Training of Trainers for partner institutions – local level.
iii.   Creation of new training programs, e-learning toolkits and platforms.
iv.   Creation of the Working group for strengthening capacities for the sustainable finance implementation and exchange of practices.

It is important to add that all above-mentioned activities benefited a synergy with additional membership of the ASB in the Sustainable Banking and Finance Network SBFN since 2020.

**Understanding the characteristics of the local market.** Working group for strengthening capacities for the sustainable finance implementation and exchange of practices created by the ASB and IFC, created and conducted a qualitative survey on existing sustainable financing practices among banks operating in Serbia - one of the recommended tools in the preparatory phase of institutions, especially banking associations, to help them gain insight into sustainable financing practices, capacity, appetite and expectations related to sustainable financing and ESG. During 2022 and 2023, around 40 questions from various aspects were analyzed.

**Guidelines for strengthening capacities for ESG and sustainable finance policies implementation.** Based on the existing practices, and feedback received during interviews and surveys, gap analysis has been produced, too. It enabled further discussion of the Working Group and decision on a tailor-made approach – the creation of the Guidelines that will help banks in introducing sustainable finance policies, strategies and other needed factors for effective and efficient sustainable finance practice. Guidelines for strengthening capacities for sustainable and ESG implementation have been developed, covering various recommendations to banks and classified into several pillars, among which:

    Part 1. Strategy and governance,
    Part 2. Policies and procedures,
    Part 3. Organizational structure and capacity, including qualified and trained staff,
    Part 4. Non-financial reporting requirement.

Guidelines for strengthening capacities for sustainable and ESG implementation have a voluntary nature. Besides the Guidelines, as a direct benefit of collaboration between the National Banking Association and international financial institutions which is tailor-made and based on local market needs, an additional benefit is in fostering and strengthening the institutional aspect – Joint working group of the Association of Banks, IFC and Banks is the model that could be replicated as a good practice elsewhere.

## 4.   FUTURE RESEARCH DIRECTIONS

Strengthening the capacities of banks for the implementation of sustainable finance and ESG is a process with many important activities and steps, among which education is essential. Therefore, future research direction should go into the direction of international best practices to be adapted to the local needs in areas like:
i.     proper education form program,
ii.    curriculum for banks and all its functions,
iii.   curriculum for training for specific functions in banks.

Role of the research in these domains would be necessary, and a precondition for further successful tailor-made application of international best practices to the local market characteristics.

Some challenges may arise, such as the necessity for the coordination of efforts at the national level.

## 5. CONCLUSION

The findings of the research show that banks allocate lending to various sectors with a strong green impact. Banks are active in building and strengthening capacities, including reliance on partnerships and collaborations with other partner institutions, such as international financial institutions and national banking associations. Increasing the number of projects on the markets will lead both to the capital markets development (private sector) and help governments in their path to the realization of the Sustainable Development and Sustainable Development Goals (public sector) (Sredojević, 2020).

The partnership of local representative institutions with other institutions/stakeholders ensured Institutionalization and continuity - Organizational aspect within the organization or among many organizations i.e. banks.

The result of such a model of collaboration is tangible and institutionalized through voluntary guidelines for sustainable finance and ESG practices, as well as through a joint working group of the Association of Banks, IFC and Banks. Understanding the local situation and characteristics through a tailor-made approach enabled specific adaptation of the international best practices.

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# Financial Literacy and Income Inequality in the European Emerging Countries

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**Abstract:** *This study highlights the distributional impact of financial litera-
cy by using annual cross-country panel data from a sample of Central, East-
ern, and Southeastern European countries observed during the period 2012-
2017. Particular attention is dedicated to financial competencies regarding
various aspects of interest rates, inflation, and risk diversification issues. Our
empirical approach, based on the estimated generalized least square meth-
od, allows us to identify those groups of individuals who benefit in terms
of relative incomes based on different financial skills. The findings reveal a
strong positive correlation between risk diversification knowledge and over-
all and top-bottom income inequality. Important policy implications are
drawn in the case of the emerging European countries.*

## 1. INTRODUCTION

Income inequality and financial literacy are critical concerns in emerging countries. Inequal-
ity has recently reached its highest levels, with a small portion of individuals benefiting in
terms of relative incomes, contrasting with many households that are financially fragile and
struggle with their financial management. Thus, it is of great importance for policymakers to
understand how financial knowledge interacts with income inequality in order to identify tools
to alleviate income distribution.

This study aims to contribute to the scarce literature dedicated to the nexus of financial literacy
and inequality by exploring a sample of Central, Eastern, and Southeastern European (CESEE)
countries over the 2012-2017 period based on cross-country panel data regression. In the last
forty years, we have witnessed increasing inequalities in European countries, while post-com-
munist Eastern European countries have followed a catching-up process with more unequal
states in Western and Southern Europe (Blanchet et al., 2019). Central, Eastern, and Southeast-
ern European (CESEE) countries record income inequality levels slightly above the Europe-
an Union average. However, in CESEE countries, just one in five adults can be considered fi-
nancially literate, even though the economic turbulence during the transition has made some of
them more aware of inflation effects (Reiter & Beckmann, 2020). Nevertheless, the situation is
quite heterogeneous within the region: the Czech Republic groups individuals with the highest
overall scores of financial literacy and the lowest inequality, while Romania records the lowest
score of financial literacy and the highest inequality.

Two arguments make the present study valuable. First, we contribute to the existing literature
by approaching financial literacy in a disaggregated manner, accounting for different finan-
cial skills, basic and complex, respectively. Second, we focus our research on a country sam-
ple (CESEE) never addressed in the dedicated literature by exploring a new dataset (OeNB)

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that provides financial literacy data for these countries. The main finding in this study shows a strong positive correlation between risk diversification knowledge and overall and top-bottom inequality. The paper is structured as follows: section 2 presents the literature review, section 3 introduces the data, empirical model, and methods, section 4 presents and discusses the estimation results, and the final section summarizes the main findings of the study and some policy implications.

## 2. LITERATURE REVIEW

There is an important gap in the literature strand dedicated to assessing the role of financial literacy in income distribution. Even though income inequality is a topic largely discussed among both researchers and policymakers, and there is a growing interest in financial literacy in the last decade, they are hardly tackled together. In contrast, a number of studies analyze the effect of individuals' financial knowledge on their socioeconomic status, such as post-retirement well-being (Van Rooij et al., 2012; Lusardi et al., 2014; Clark et al., 2017), saving (Murendo & Mutsonziwa, 2017), and the cost of borrowing (Lusardi & de Bassa Scheresberg, 2013). As stated by Gallo and Sconti (2023), financial literacy is recognized as a powerful tool against financial fragility and mispractices.

The well-informed individual consumes less than his income in times of high earnings and saves to support consumption when income falls. According to Lusardi et al. (2014), this life-cycle optimization process may be shaped by a number of factors: the preferences of the consumer (risk aversion, discount rates), the economic setting (liquidity constraints), and the social safety net benefits (the generosity of welfare schemes and social security benefits). Nevertheless, saving and investment decisions of individuals require expertise in undertaking complex economic calculations or understanding and dealing with financial markets. A small portion of individuals have financial knowledge, or people are not even interested in acquiring these skills as they come at a cost. Financially literate individuals make informed financial choices regarding saving, investing, job planning, or borrowing. In contrast, people who are not well-equipped for financial management decisions borrow more, save less, incur higher interest rates on loans, and higher transaction fees.

Financial knowledge may be associated with income inequality through a number of channels. First, financial knowledge enables individuals to better allocate resources over their lifetimes in a world of uncertainty and imperfect insurance. As stated by Lusardi et al. (2017), the financial decisions made by people early in life may have long-term effects on accumulation levels and retirement well-being. This observation is in line with Cagetti's (2003) findings, which point out that college-educated consumers are more patient and prudent compared to less educated ones, who have lower risk aversion and lower prudence. Second, within a framework where financial development is expected to matter for the distribution of incomes, individual economic competences in using sophisticated financial instruments may shape the impact of financial markets on inequality. According to Prete (2013) and in line with the findings of Van Rooij et al. (2012) and Kaiser et al. (2021), as financial products become more complex, the link between financial development and income inequality depends on whether investors can understand financial prospects and use financial instruments properly. Gallo and Sconti (2023) find that an increase in the financially literate population significantly reduces income and wealth inequality, and people who benefit more from higher levels of financial literacy are the most vulnerable ones (people with low education or middle-aged individuals).

While Prete (2013), Gallo and Sconti (2023), and Prete (2018) suggest that financial knowledge is negatively and significantly linked with income inequality, Kurihara (2013) shows that financial knowledge does not affect income inequality, and Oliver-Marquez et al. (2022) state the relationship is non-linear. As a result of earlier studies, there is no perfect consensus about the distributional implications of financial literacy.

## 3. DATA, EMPIRICAL MODEL AND METHODOLOGY

### 3.1. Dataset and Descriptive Statistics

Our sample contains data on income inequality, financial literacy, and other economic, labor market, and institutional factors for six CESEE countries (Bulgaria, Czech Republic, Croatia, Hungary, Poland, and Romania). The sample spans from 2012 to 2017. The dataset is derived from various sources. Data on income inequality are survey-based and were obtained from the Standardized World Income Inequality Database (SWIID) and the OECD Database. The data on the variable of interest, Financial Literacy, are survey-based and originated from the Austrian National Bank's OeNB Euro Survey. Financial literacy scores from the OeNB Survey are computed and aggregated based on people's answers to four core questions (presented in Appendix, Table A1) embracing three topics largely acknowledged as relevant: interest rates, inflation, and risk diversification (Mitchell & Lusardi, 2012). Basic skills in financial literacy measure numeracy, the ability to do simple calculations related to compounding of interest rates, and an understanding of inflation in the context of a simple financial decision. More complex knowledge refers to financial markets, including stocks, stock mutual funds, and risk diversification. Five indicators are available in the OeNB Euro Survey to proxy the level of financial literacy, of which two represent the extremes (the most financially literate and the financially illiterate), and the other three measures represent percentages of the population with correct answers to one particular financial-literacy question. The rest of the data referring to economic, labor market, and institutional factors mainly come from the World Bank and Eurostat databases. All the data are collected annually. Definitions and data sources for all the variables employed in our analysis are captured in Appendix (Table A1). Summary statistics for all variables are available upon request.

### 3.2. Empirical Model

To address the question of whether financial literacy is associated with income inequality, we consider the theoretical framework postulated by Post-Keynesian theory, where determinants such as initial factor endowments, market imperfections, and institutions model income dispersion. Changes in income distribution are driven by changes in asset distribution across individuals, who in turn are determined by factors like individual saving-investment decisions, education, institutional quality, etc. (Huynh & Nguyen, 2020). To capture the role of education in the financial area for individual financial decisions and relative incomes, financial literacy is added to our study among drivers of income distribution within an augmented inequality model. Our model also complies with and enriches the traditional human capital model, which implies that the distribution of income is determined by both the level and distribution of education across the population (Coady & Dizioli, 2018). The hypothesis tested in our study states as follows:

**Hypothesis:** Financial literacy improves income distribution.

The following country panel specification is used in our empirical study:

$$Income\ Inequality_{it} = \alpha_0 + \alpha_1\ Income\ Inequality_{it-1} + \alpha_2\ Financial\ Literacy_{it} + \\ + \delta_j\ Z_{it} + \mu_i + \varepsilon_{it} \quad (1)$$

(1)

The dependent variable is Income inequality for country i in year t. The main independent variable is the size of the Financial Literacy for country i in year t, and a set of control variables Z is added. The $\mu_i$ captures unobserved time-invariant country-fixed effects and $\varepsilon_{it}$ captures other unobserved determinants that may vary across countries and periods. The dependent variable is proxied in two different ways: the core measure of overall inequality (Gini index in equivalized household disposable income) and the top-bottom income gap (P90_P10 and S80_S20). The main independent variable, Financial Literacy (FinLit), is approximated by the two overall measures and three partial measures, all provided by OENB. Based on previous studies dealing with drivers of income inequality (Huynh & Nguyen, 2020; Coady & Dizioli, 2018), we have included the following categories of variables as controls in our model: macroeconomic variables (GDP per capita), labor market variables (unemployment and total self-employed workers), economic factors (openness of the economy), and institutional quality (the size of the domestic credit market).

## 3.3. Methodology

Panel data techniques have been used to estimate the income inequality equations. The econometric fixed-effect panel data model is used to test our hypothesis. The chosen variables included in the model are not randomly chosen, and therefore, the fixed-effects model is a more suitable model compared to a random-effects model. Fixed-effects models often feature in small samples and also in the analysis of countries or regions, by allowing a different intercept for each observation. The estimated generalized least squares (EGLS) method is performed in our panel, where only cross-sections were fixed. The cross-sectional GLS Weights option, the covariance method for white cross-sectional coefficients, and a degree of freedom correction are all employed to obtain more efficient estimates and to allow for the existence of heteroskedasticity or autocorrelation in the residuals. Income inequality hardly varies within a country, and unobserved slowly changing factors may explain its durability. Dobre et al. (2019) highlight the role of historical factors in the present value of income dispersion. Thus, to emphasize the dynamics, a one-year lag of the dependent variable is included in our model. The reduced number of observations per cross-section requires setting the maximum lag limit to one year. Many tests are run to check the consistency of the estimations: the normality test (Jarque-Bera), the redundant fixed effect test, and the residual cross-section dependence test (Breusch-Pagan LM test and Pesaran CD – Pesaran, 2007). Furthermore, the Durbin-Watson statistic indicates the presence or absence of autocorrelation in the model.

## 4. EMPIRICAL RESULTS AND DISCUSSIONS

### 4.1. Tests Result

In the first step, the cross-sectional dependence test (Breusch-Pagan LM) is performed, and the stationary properties of variables are tested (LLC unit root test), for which the results are available upon request. Second, as shown by the test results reported in the Appendix (Table A2 and Table A3), the evolution of the regressors explains 97-99% of the dynamics of inequality, and

the differences in the coefficient of determination are very slight from one model to another. This validates the proper selection of the regressors in our models. Displaying a result close to 2, the Durbin-Watson statistic shows no autocorrelation in the model. The distribution of the residuals is normal, since the probability associated with the Jarque-Bera statistic is greater than 10% in all models. A p-value less than 0.05 rejects the null hypothesis of redundant effects in almost all regressions, confirming that the effects are statistically significant (the fixed-effect model is appropriate). Finally, a p-value greater than 0.10 shows no residual cross-sectional dependence in the Breusch-Pagan LM and Pesaran CD tests for almost all estimations.

## 4.2. Baseline Results

In the next step, we test the impact of education dedicated to a particular area (financial education) on income dispersion. We begin by considering the two extremes when approximating the level of financial literacy: people who are entirely financially literate and those who are completely financially illiterate. However, no significant results are found in the regressions (Table A2 – regressions 1 and 2). It appears that the number of people with comprehensive financial knowledge or those who know nothing about the financial world does not affect income dispersion. This aligns with our first main result about the impact of financial literacy, supporting the findings of Kurihara (2013) who also found an insignificant connection with income inequality.

The lack of significance of the two general measures of financial literacy raises questions about the implications of measures that account for financial knowledge in specific areas: interest rates, inflation, and risk diversification, respectively. This is the first time in the literature that specific financial competencies are evaluated in connection with inequality. Our outcomes in Table A2 show that financial knowledge regarding interest rates is not a significant factor in overall income distribution (proxied by the Gini index in disposable income) (regression 3), while both inflation (regression 4) and risk diversification (regression 5) knowledge significantly shape inequality. The deeper the population's knowledge of inflation issues, the higher income inequality is. A 1% increase in the percentage of the population with correct answers to the financial-literacy question on inflation leads to an increase in the Gini index by 0.005 points (statistically significant at 5%). Conversely, the greater the financial literacy in the area of risk diversification, the deeper income inequality is. A 1% increase in the percentage of the population with correct answers to the financial-literacy question on risk diversification leads to an increase in the Gini index by 0.009 points (statistically significant at 1%).

These results imply that our hypothesis about the beneficial role of financial literacy for income distribution is rejected in our study. Instead, improving financial competencies in particular fields may exacerbate income inequality.

The empirical outcomes reported in Table A2 also show that the lagged dependent variable is always positive and significant at 1%, indicating that income inequality is path-dependent in our sample. The current value of income inequality is positively affected by its lagged value, confirming previous contributions (Huynh, 2021). The impact of historical income inequality on the current one is larger in our sample than in the case of the entire EU sample, as observed by Dobre et al (2019). This suggests that income inequality in our European country sample is more influenced by historical levels and thus more difficult to reverse. Among the other drivers of income inequality considered in the regressions, we obtain high significance for the development level, the number of self-employed workers, and credit market performance.

## 4.3. Robustness Checks

In this subsection, we conduct robustness checks based on alternative indicators of income inequality. As particular groups of individuals may benefit in terms of relative incomes from financial literacy while others may not, we choose to look into it. The literature strand seeking to isolate the socio-economic categories benefiting from financial competencies produces contrasting results (Lusardi et al., 2017; Cagetti, 2003; OECD, 2020; Lusardi, 2015; Gallo & Sconti, 2023).

Thus, we replicate our empirical investigation by testing the impact of financial literacy on income inequality measured as the top-bottom income gap (P90_P10 and S80_S20). First, the relative income at the 90th percentile to that at the 10th percentile is regressed. The findings in Table A3 are in line with previous results on education's impact reported in Table A2, except for the effect of financial literacy in the inflation area. Financial literacy in risk diversification boosts not only overall income inequality but also the income gap between the rich and the poor (regression 8). A growth of 1% of the population with correct answers to the financial literacy question on risk diversification leads to an increase in the top-bottom income gap by 0.01 points (statistical significance of 1%). Financial knowledge in the field of interest rates does not significantly shape the gap between the rich and the poor (regression 6), which is consistent with the result obtained over the total income dispersion. It means that knowing something about interest rates does not change the way incomes are distributed between individuals. By contrast, understanding inflation may reduce the top-bottom income gap (regression 7), even if it increases overall inequality. A rise of 1% of the population with correct answers to the question on inflation leads to a decrease in the top-bottom income gap by 0.02 points (statistical significance of 10%).

In a second step, to check the robustness of previous results, the relative income of the top quintile to that of the first quintile (another measure of the top-bottom inequality) is regressed on financial literacy. The outcomes in Table A3 confirm that financial literacy on risk diversification is an important driver of income inequality between the poor and the rich (regression 11).

By identifying a positive and significant link between financial literacy on risk diversification and income inequality, we support earlier findings (Lusardi et al., 2017; Cagetti, 2003) stating that individuals who benefit the most from financial knowledge are the most educated ones, who may also be assumed to be wealthier and able to afford the cost of acquiring complex financial competencies. Also, the outcome of our study is in line with Reiter and Beckmann's (2020) observation, who assert that low financial literacy levels in CESEE countries are more common among less educated individuals. The number of self-employed workers and credit market performance remains significant in explaining income inequality, as in the baseline estimations. In addition, the degree of openness becomes relevant for income disparity between the rich and the poor.

## 5. CONCLUSION

Many countries all over the world, especially emerging countries, face increasing income inequality, which is path-dependent and difficult to reverse.

The main finding of our empirical analysis shows a strong positive correlation between risk diversification knowledge and overall and top-bottom inequality. This outcome supports and reinforces evidence from other studies showing that individuals who benefit the most from financial knowledge are the rich and most educated ones. We add by highlighting the financial area

that gives educated people an advantage in terms of acquired competencies and relative income levels, namely risk diversification skills. It is probable that low-educated and low-income people remain financially ignorant, recognizing that they cannot benefit from financial sophistication and complex financial strategies (as also stated by Lusardi et al., 2017). From another perspective, our findings lead to the conclusion that both rich/educated people and poor/less educated people may benefit from financial competencies linked to interest rates and inflation (more accessible topics than risk diversification issues), as their incomes can grow while income inequality does not significantly change.

Disaggregating financial knowledge into components and analyzing their relationship with inequality brings new insights into the dedicated literature and explains the lack of agreement in previous works. Our results highlight that different financial competencies have diverse influences on income dispersion, and if financial knowledge is not properly distributed, it cannot reduce inequality.

Some useful policy implications could be drawn based on the outcomes of our study. Prioritizing access to interest rates and inflation skills for poor and low-educated people may diminish both financial literacy inequality and income inequality. More complex financial competencies (such as risk diversification skills) are more likely to remain in the repertoire of the rich and educated people, who will benefit from them in terms of relative incomes. Public actions aimed at easing access to these advanced skills for poor and low-educated people may not be effective, as they might rationally remain financially ignorant in the face of a highly complex financial market. In sum, targeting particular groups of individuals with specific financial competencies may contribute to alleviating income distribution within emerging European countries.

Some limitations are present in our study, such as the small size of our sample, which constrains us in developing the empirical strategy and choosing the methods. Future research may consider a larger sample when historical financial literacy data become available, and may eventually introduce a moderating factor of the nexus of financial literacy and income inequality.

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# Appendix

**Table A1.** Data description and sources

| Variable | Description | Sources |
|---|---|---|
| **Gini disposable income** | Estimate of Gini index of inequality in equivalised (square root scale) household disposable (post-tax, post-transfer) income, using Luxembourg Income Study data as the standard. | The Standardized World Income Inequality Database (SWIID), https://fsolt.org/swiid/ |
| **P90_P10** | The ratio of the upper bound value of the ninth decile (i.e. the 10% of people with highest income) to that of the upper bound value of the first decile. | OECD Database, https://www.oecd.org/social/income-distribution-database.htm |
| **S80_S20** | The share of all income received by the top quintile divided by the share of the first, or the ratio of the average income of the top quintile to that of the first. | OECD Database |
| **GDP/cap (GDP per capita)** | The log of GDP per capita in constant 2010 U.S. dollars, the GDP being divided by midyear population. | World Bank national accounts data and OECD National Accounts data files |
| **SELF_EMP (Self-employed)** | Total self-employed workers (percentage of total employment). This measure is modelled using ILO estimate. | International Labour Organization, ILOSTAT database and World Bank |
| **OPEN (Openness)** | Exports plus imports as a share of GDP. | World Bank – World Development Indicators |
| **UNEMPLOY (Unemployment)** | Fraction of unemployment to total labor force. | EUROSTAT Database, https://ec.europa.eu/eurostat/web/lfs/data/database |
| **DOM_CREDIT (Domestic credit)** | Domestic credit to the private sector as a percentage of GDP. | International Monetary Fund, International Financial Statistics and data files, and World Bank and OECD GDP estimates. |
| **FinLit – All correct** | Percentage of the population with correct answers to all three financial-literacy questions on interest rates, inflation, and risk diversification. | Austrian National Bank, https://www.oenb.at/en/Monetary-Policy/Surveys/OeNB-Euro-Survey/financial-literacy.html |
| **FinLit – None correct** | Percentage of the population with no correct answers to any of the three financial-literacy questions on interest rates, inflation, and risk diversification. | Austrian National Bank, https://www.oenb.at/en/Monetary-Policy/Surveys/OeNB-Euro-Survey/financial-literacy.html |
| **FinLit – interest rate** | Percentage of the population with correct answers to the financial-literacy question on interest rates: "Suppose you had $100 in a savings account and the interest rate was 2 percent per year. After 5 years, how much do you think you would have in the account if you left the money to grow: [**more than $102**; exactly $102; less than $102; do not know; refuse to answer.]" | Austrian National Bank, https://www.oenb.at/en/Monetary-Policy/Surveys/OeNB-Euro-Survey/financial-literacy.html |
| **FinLit - inflation** | Percentage of the population with correct answers to the financial-literacy question on inflation: "Imagine that the interest rate on your savings account was 4 percent per year and inflation was 5 percent per year. After 1 year, would you be able to buy: [more than, exactly the same as, or **less than today** with the money in this account; do not know; refuse to answer.]" | Austrian National Bank, https://www.oenb.at/en/Monetary-Policy/Surveys/OeNB-Euro-Survey/financial-literacy.html |
| **FinLit – risk diversification** | Percentage of the population with correct answers to the financial-literacy question on risk diversification: "When an investor spreads his money among different assets, does the risk of losing money" [increase; **decrease**; stay the same; do not know; refuse to answer.]" | Austrian National Bank, https://www.oenb.at/en/Monetary-Policy/Surveys/OeNB-Euro-Survey/financial-literacy.html |

**Source:** Own processing

**Table A2.** Main results and Heterogeneity tests – different items of the financial literacy

| Dependent variable | GINI disposable income | | | | |
|---|---|---|---|---|---|
| | **All correct** | **None correct** | **Q. INT. RATES** | **Q. INFLATION** | **Q. RISK DIV.** |
| **Independent variables** | **(1)** | **(2)** | **(3)** | **(4)** | **(5)** |
| **GINI_DISP(-1)** | 0.79***(0.07) | 0.74***(0.09) | 0.74*** (0.09) | 0.73*** (0.09) | 0.81*** (0.06) |
| **Log(GDP/cap)** | 4.52***(1.03) | 4.86***(1.10) | 4.20*** (1.00) | 4.93*** (0.85) | 4.42*** (1.05) |
| **UNEMPLOYMENT** | 0.04* (0.02) | 0.04 (0.02) | 0.03 (0.02) | 0.04* (0.02) | 0.03** (0.01) |
| **SELF_EMPLOYED** | 0.15*** (0.01) | 0.17*** (0.01) | 0.13*** (0.02) | 0.17***(0.01) | 0.15***(0.01) |
| **OPEN** | -1.5 (0.86) | 1.06 (2.12) | 0.67 (1.35) | 1.81 (1.75) | -3.74***(0.87) |
| **DOMESTIC CREDIT** | 0.02*** (0.005) | 0.02*** (0.004) | 0.02***(0.004) | 0.02***(0.004) | 0.02***(0.005) |
| **FINANCIAL LITERACY** | 0.007 (0.007) | -0.008 (0.006) | -0.004 (0.004) | 0.005**(0.002) | 0.009***(0.002) |
| **C** | -41.51***(9.82) | -43.79***(11.01) | -36.63***(11.13) | -44.80***(8.96) | -41.18***(9.76) |
| **R-squared/Adj Rsq** | 0.99/0.99 | 0.99/0.99 | 0.99/0.99 | 0.99/0.99 | 0.99/0.99 |
| **Durbin-Watson** | 2.08 | 2.04 | 2.11 | 1.97 | 2.00 |
| **No of obs** | 30 | 30 | 30 | 30 | 30 |
| **Jarque-Bera** | 1.67 [0.43] | 1.23 [0.54] | 0.63 [0.72] | 1.11 [0.57] | 0.85 [0.65] |
| **Redundant fixed effect** | 4.54 [0.00] | 3.71 [0.01] | 3.46 [0.02] | 5.34 [0.00] | 5.61 [0.00] |
| **Residual cross-section dependence BP-LM/P-CD** | 11.67 [0.70]/ -0.79 [0.42] | 11.12 [0.74]/ -0.65 [0.51] | 13.30 [0.57]/ -1.21 [0.22] | 12.57 [0.63]/ -1.00 [0.31] | 13.80 [0.54]/ -1.00 [0.31] |

**Note:** Standard errors in parentheses. A probability in bracket. ***, **, and * indicate the significant levels at 1%, 5%, and 10%. Method: Panel EGLS; Fixed effects: Cross-section Fixed; GLS Weights: Cross-section weights, Coef covariance method: White cross-section

**Source:** Own processing using EViews software

**Table A3.** Robustness checks

| Dependent variable | P90_P10 | | | S80_S20 | | |
|---|---|---|---|---|---|---|
| | **Q. INT. RATES** | **Q. INFLATION** | **Q. RISK DIV.** | **Q. INTEREST RATES** | **Q. INFLATION** | **Q. RISK DIV.** |
| **Independent variables** | **(6)** | **(7)** | **(8)** | **(9)** | **(10)** | **(11)** |
| **P90_P10(-1)** | -0.07 (0.15) | -0.06 (0.16) | -0.17 (0.12) | 0.18 (0.19) | 0.19 (0.20) | 0.17 (0.12) |
| **Log(GDP/cap)** | 2.03 (1.59) | 4.98 (2.84) | 2.47* (1.28) | 2.94** (1.09) | 3.94 (2.53) | 5.52*** (1.82) |
| **UNEMPLOYMENT** | -0.009 (0.04) | 0.04 (0.06) | -0.03 (0.03) | -0.05**(0.02) | -0.04 (0.05) | -0.09**(0.04) |
| **SELF_EMPLOYED** | 0.06***(0.01) | 0.04**(0.01) | 0.11***(0.02) | 0.13***(0.02) | 0.11***(0.02) | 0.24***(0.04) |
| **OPEN** | 8.58***(1.84) | 10.17***(2.14) | 6.71***(0.78) | 11.39***(1.96) | 9.09***(2.72) | 4.42 (6.85) |
| **DOMESTIC CREDIT** | 0.02** (0.008) | 0.03*** (0.006) | 0.03*** (0.007) | 0.03***(0.009) | 0.03** (0.01) | 0.05***(0.007) |
| **FINANCIAL LITERACY** | -0.004 (0.002) | -0.02* (0.01) | 0.01*** (0.001) | -0.01*(0.005) | -0.01(0.01) | 0.02***(0.004) |
| **C** | -18.12 (16.05) | -45.78 (28.00) | -23.79* (12.69) | -28.83** (11.58) | -37.56 (24.64) | -57.12*** (17.9) |
| **R-squared/Adj Rsq** | 0.99/0.98 | 0.99/0.98 | 0.99/0.99 | 0.98/0.97 | 0.98/0.97 | 0.99/0.98 |
| **Durbin-Watson** | 2.59 | 2.88 | 2.52 | 2.7 | 2.59 | 2.54 |
| **No of obs** | 25 | 25 | 25 | 25 | 25 | 25 |
| **Jarque-Bera** | 0.94 [0.62] | 0.86 [0.64] | 0.81 [0.66] | 1.47 [0.47] | 1.26 [0.53] | 1.36 [0.50] |
| **Redundant fixed effect** | 3.69 [0.03] | 5.13 [0.01] | 8.50 [0.00] | 2.40 [0.10] | 2.28 [0.11] | 4.07 [0.02] |
| **Residual cross-section dependence BP-LM/P-CD** | 14.82 [0.13]/ 0.72 [0.47] | 11.76 [0.30]/ 0.05 [0.95] | 16.92 [0.07]/ 1.08 [0.27] | 10.43 [0.40]/ -1.33 [0.18] | 9.70 [0.46]/ -1.27 [0.20] | 11.19 [0.34]/ -0.79 [0.42] |

**Note:** Standard errors in parentheses. A probability in bracket. ***, **, and * indicate the significant levels at 1%, 5%, and 10%. Method: Panel EGLS; Fixed effects: Cross-section Fixed; GLS Weights: Cross-section weights, Coef covariance method: White cross-section

**Source:** Own processing using EViews software

# Circular Economy and Financial Accounting

**Aida Mosko**[1] (iD)

**Abstract:** *Financial accounting has an important role in managing financial information in the circulating economy. The transition from a linear economy to a circular economy requires innovation in all parts of the life cycle of materials and various challenges related to proper and effective financial accounting. At the core of this economic model is the development of a sustainable process throughout the life cycle of products, from production to the final stage. Through finance and accounting, the business has the ability to keep track of its financial health and reliability and also drive the transaction towards the circular economy.*

*The accounting and reporting techniques designed for the linear economy are not the right ones to represent the value of circular businesses. Accounting must analyse and report to all relevant stakeholders of a company on financial and non-financial performance and enable them to understand the value and impact of the circular economy. To achieve this goal, our current way of doing business must change, and accounting has a major role to play in that. This paper aims first to identify and analyse the main financial accounting challenges related to the circular economy and also to draw attention to the importance of redefining value, impact and risk to advance the circular transition and expand business opportunities.*

## 1. INTRODUCTION

The circular economy is a concept that currently international institutions and national governments are promoting and trying to take action towards it. The implementation of this business model for the EU manufacturing sector can generate gains of up to 600 billion euros annually (Korhonen, 2018). Several businesses around the world are also promoting a circular economy. From 2018 to 2023, the discussions and research about this issue are tripled and this indicates increasing awareness of the importance of the circular economy for achieving the goals of sustainable development and increasing the efficiency of the use of natural resources. But, taking into consideration figures of the use we make of secondary materials, the trend of making a circular economy an imperative during debates, discussions and articles is not reflected in the data on the amount of materials consumed. The use of secondary materials is declining steadily (Ellen MacArthur Foundation, 2019). In 2018, the society recycled 9.1% of its resources while in the year 2023, it declined by 7.1% (CGRi, 2024). This means that in 2023 over 90% of resources are lost annually. In terms of global consumption figures for six years, the global economy has consumed as much material as the entire 20ᵗʰ century (CGRi, 2024).

These figures display that despite discussions on the importance of circular economy and giving it a „megatrend" status it is not reflected in on-the-ground actions. To achieve Sustainable Developments Goals it is imperative to take action on putting circular economy into practice. The transformation from the linear economic model to the circular one is accompanied by accounting challenges for such a model, accounting concepts and applications, reporting and other changes affected by this process.

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The structure of this paper is as follows: Chapter Two describes the research problem, research objectives, research importance and hypothesis and methodology. Chapter three introduces the conceptual framework of circular economy and accounting in circular economy. This different way of doing business means challenges for the management of the business and its operations and among them the challenges related to the finances and accounting of implementation of the circular business and implications for the accounting profession. Chapter Four introduces the challenges of accounting concepts and possible solutions. Chapter Five is the Conclusion.

## 2. DESCRIPTION OF THE RESEARCH

Accounting plays an important role in presenting the economic reality of an economic entity. It records all financial and business transactions. But in the frame of circular economy accounting must be not just an enabler of it but a diver of this new model of doing business. This study aims first to identify and analyse the main financial accounting challenges related to the circular economy and also to draw attention to the importance of redefining value, impact and risk to advance the circular transition and expand business opportunities.

### 2.1. Research Problem

In the twenty-first century, society is facing challenges related to its resource-intensive and consumption-dependent economy. The impact of this business model and consumption behaviour is destructive to the environment. Linear practices and mind-sets dominate the economy and in this background, it is hard to go circular. Investors are used to working with linear business models. Financiers are searching for sustainable investments. Accountants are also facing new requirements on the sustainability impact of corporate activity. It is precisely for these reasons that the question of changes in financing and accounting is brought to promote the progress of the circular economy.

To face the problem of resource scarcity, emphasis should be placed on circular economy practices based on waste recycling, increasing the efficiency of their use, keeping the resource in the circuit as long as possible and extending their useful life.

These new practices may require changes in accounting concepts and practices and due to these circumstances the research problem may focus on answering the question: Is the transition to the circular economy bringing challenges to the accounting field and especially to the concepts and applications of accounting? If so, what are the possible solutions to overcome these challenges?

### 2.2. Research Objectives

- Introducing the conceptual framework of the circular economy. Concepts, benefits and opportunities.
- Presentation of the main obstacles that must be overcome in the transition from a linear to a circular economy in relation to accounting concepts and applications.
- Revealing the changes that need to be made and possible solutions to the challenges in accounting concepts and practices during the process of transition to the circular economy.

## 2.3. Research Importance

The importance of this research is related to the importance that the issue of adopting the circular economy model of doing business had for sustainable development and the challenges that the implementation of this model brings for accounting within the framework of new concepts and applications introduced in the implementation of the circular economy. New procedures must also be implemented.

## 2.4. Research Hypothesis

The research is based on the hypothesis that: The transfer from the linear to the circular economy is accompanied by challenges related to new accounting concepts and applications and appropriate solutions can be found.

Research Methodology: The research uses deductive methods in the description and analysis of research variables.

## 3. CONCEPTUAL FRAMEWORK

The circular economy is a system based on restoration and renewal. It aims to extend the useful life of products and materials. The overall goal of this system is to synchronize industrial development with environmental protection through integrated management approaches. It can also be considered as a systems approach to economic development for the benefit of the economic entity, society and the environment. The circular economy aims to break the link between economic development and consumption of scarce resources and build economic, natural and social capital and depends on the use of renewable energy sources, increased use of renewable materials and increased work efficiency and effectiveness. Operating in this way requires the active participation and cooperation of small and large economic entities, creating the possibility that such an inclusive economy will be in a better position to create and share the benefits of the circular economy. Three are the main principles of the circular economy: the projection of waste and pollution, the retention of products and materials in use, and the regeneration of natural systems.

## 3.1. Conceptual framework for circular economy

Climate change is stated to be driven by human activity (IPCC, 2023; Circle Economy Foundation, 2024). The increased pollution and waste, the loss of biodiversity, the increase in global temperatures and the scarcity of resources are outcomes of human activity and increased resource use because of rising consumption rates. To reduce the harm of human activity on the planet it is imperative to make a transition from the linear economic model to the circular economy. This shift is the way of achieving the social and environmental goals for sustainable development, achieving emissions reductions and increasing the use of secondary materials. Currently, emission reduction has been related to clean energy. This is imperative but this will impact only 15% of the goal of limiting warming temperatures to 1.5 degrees (United Nations Framework Convention on Climate Change, 2016). According to this figure, it is imperative the transition to the circular economy that has to contribute by 85% to reaching the goal of limiting warming temperatures. (Circle economy, 2021).

According to these data and analysis our global economy has to move from **a** linear economy that is resource-consuming and increases waste and pollution to one that takes into consideration reusing and re-entering into the system of resources, increasing their efficiency, increasing their performance and making their life-cycle as long as possible. The implementation of this business model will impact the safeguarding of finite resources and also cut global emissions by spreading out and reducing over time the emissions linked to the flow of the materials. The last one, in the frame of circular economy, is a cyclical flow model that makes reuse, remanufacturing, repair, and updating of the components of the production or services, materials and products.

As it is already mentioned there is a strong connection between sustainability and circular economy, it is a cause-effect relationship. Achieving overall goals of sustainability depends on the stage that the society implements a circular economy. The objectives related to the three main pillars of sustainable development, economic empowerment, social inclusion and environmental resilience can be achieved through a circular economy. Circularity is the key to achieving sustainable development; it is the action to be taken to fulfill the goals of sustainability (Circle economy, 2021).

According to the A New Circular Economy Action Plan for a Cleaner and More Competitive Europe, to walk toward sustainability it is imperative to emphasize applying a regenerative growth model that from one side will result in a rational use of natural resources and on the other side will stimulate and burst innovative solutions from the business companies. They will work on creating environmentally friendly products and services, create new markets, and give more chances for social integration (European Commission, 2020). This different way of doing business means challenges for the management of the business and its operations, and among them, the challenges related to the finances and accounting of the circular business are the ones that make the main barrier to overcoming and achieving success in the implementation of the circular model of doing business.

### 3.2. Adopting a Circular Economy

The circular economy is one of three kinds of industrial economies that are linear, circular and performance economy. A linear economy is one in which the product flows in a direct take-use-waste progression, natural resources are turned into products, and during this process, there are several value-added stages. When the product is sold, the responsibility for risks and waste passes to the buyer. The buyer decides to reuse or recycle it or just throw it away. This model is characterized by the overuse of raw materials in saturated markets. Companies in this type of industrial economy model profit by selling large quantities of cheap products. A linear economy is like a river.

The circular economy is the type of economy where the recycling of goods creates jobs, and saves energy by reducing resource consumption and waste. Used goods and materials are collected and sold for use in the production of other types of goods. A circular economy is like a lake.

The performance economy goes further and works by selling services as goods through rental business models. The manufacturer remains the owner of the product and is responsible for the risks and costs of the waste. In contrast to the circular economy, the performance economy focuses on finding solutions instead of producing products.

The circular economy aims to move from the traditional linear one of extract-produce-consume-dispose to an economy that reduces the costs of raw materials and energy and controls the costs of waste management and emissions. The multiple uses of economic values and the extension of their life make a circular economy sustainable. This makes the circular economy attractive to economic entities because they have the opportunity to provide valuable resources in several ways (Korhonen et al., 2018).

The most important achievement in the implementation of the circular economy will be the reduction of the consumption of natural resources. This will positively affect the environment, from the resilience of the environment and the economy by providing material inputs and reducing dependence on natural resources (Potting, 2018).

The circular economy makes it possible to get the most out of manufactured materials by re-using or recycling them. Operating in this way reduces the need for raw materials through the strategy of recycling most of them, applying production models that reduce waste, producing structures and products that are lightweight, extending the life of products, implementing new models of business, applying the division of buildings, cars, etc. (Material Economics, 2018). From value reuse, there is another benefit related to the creation of new business activity, market and new job positions and employment opportunities.

The application of the circular economy model, through the use of attractive techniques for green marketing customers in promotions, can improve the image of the business (Korhonen et al., 2018). Along with these, it brings economic growth and significant savings in net material costs, the possibility of creating new jobs, innovation and other economic opportunities. More specifically, the issue of new employment opportunities can be assessed in a wide range, ranging from jobs that require high qualifications to the growth of new jobs in the service sector. It stimulates technological development and energy efficiency, creates more employment opportunities for businesses and increases materials and labour (Mustonen, 2020).

Among the benefits of switching to this business model and improvement can be mentioned increased efficiency in the use of materials and energy, increased competitiveness, savings in production costs resulting from lower insurance costs and environmental sustainability, and income generated by the sale of waste (Nikolau, 2021). The most important thing about the environment is the conservation of natural resources (among them non-renewable resources such as water, minerals and fossil fuels), the negative impact on the environment can be reduced due to the efficient way of using energy and raw materials, waste discharged into nature is reduced and toxic elements are diverted. The social benefits of the circular economy include improved social interaction between industries and local communities, increased employment and new business opportunities for recycling, and last but not least, public environmental awareness and public health awareness (En-Zhu et al., 2019).

## 3.3. Challenges of the Accounting Profession on the Implementation of The Circular Economy

The circular economy considers the entire cyclical life of a resource: they must perform at their maximum potential for as long as possible and be reintroduced into the system to continuously produce value. By maximizing the value of resources, we protect the environment and protect our scarce resources and contribute to sustainable development. The main goal of the latter is related to the integrated development of the economy, social inclusion and environmental

sustainability. The key to working and fulfilling is the implementation of the circular economy (Frishammar & Parida, 2019).

To ensure the benefits of the circular economy, our current economic system must implement a different way of doing business. The challenges to the financing and accounting of circular businesses are the main obstacles that must be overcome for a successful circular business model.

The European Commission in December 2015 (European Commission, 2020) presented the circular economy package to provide support and an action plan to support the implementation of the circular economy.

Accounts must adopt their work and procedures in coherence with the principles of the circular economy and redefine accounting information systems. Accounting is the process of recording all transactions of an economic, financial and business entity. It is because of this that accounting has the potential to function not only as an enabler of circular transformation but also to lead it (Fischer et al., 2022). In recent years, significant improvements have been made in accounting methods related to social and environmental activities within organizations, including information on these aspects in published annual statements and reports. (En-Zhu et al., 2019). There is significant progress in the field of integrated reporting where the impact of business activity on sustainability is reflected. In the field of Social and Environmental Accounting, there is a lot of research focused on measuring the results of the production process by evaluating the waste generated because these require innovative accounting methods of evaluation. Raw materials and products in the process of manufacturing companies require specific indicators to assess the impact on the environment and the scarcity of natural resources.

Accountants, with their narrow focus on financial reporting standards, and the emphasis on consistent financial evaluation, find the concept of sustainability and systems thinking as challenging. The data used to provide relevant information regarding natural capital, social and environmental impacts, as well as increasingly complex business models and systems, is complex to understand (Fischer et al., 2022). One important aspect that the accounting profession may face is to secure the provision of materials, to forecast profits, and this risk can be reduced with more recycled inputs; however, the focus on cost will shift to increased labour and costs of servicing new business and lower cost of physical product elements (Radhi & Ibraheem, 2021).

Accountants, in their work, are focused on financial reporting standards, consistent financial stability, and sustainability in social and environmental terms is challenging for them. The data used to provide integrated information on economic, financial, environmental and human capital are complex to understand. An important challenge of the accounting profession is redefining the approach to the value of materials and predicting profits in an economy that is reducing the risk of shortage of inputs by using recycled ones, although this will be accompanied by increased labour and servicing costs and reducing the costs of physical elements of production or services (Fischer et al., 2022). Cooperation is essential to using reverse recycling. Accounting should lead and can have an important role in determining measurement methods for non-financial information and make it possible to measure the social and environmental impact of business activity and the entire value chain.

Analysing an economic model, the circular economy model is related to the transformation of its design and management, resource provision, procurement, production and recycling, to

maximize social and environmental sustainability (Frishammar & Parida, 2019) and accounting can take the lead in this transformation process. A new form of accounting is needed to unlock business opportunities and redefine the approach to value, impact and risk. The new accounting models should be applied in the evaluation of waste from useless to a source of production which means to a source of value in the three pillars of sustainable development, economically, socially, or environmentally.

### 3.4.  The Circular Economy on Contents of Accounting

The information provided by the accounting system is used by internal and external users, who in traditional accounting are mainly investors and creditors, while in the framework of the circular economy, their range is wider as it includes government departments and institutions responsible for collecting information on the conversion of pollution into sources. Existing legal and financial regulations and accounting tools are not suitable to be used for the implementation of circular business models. Businesses that apply or are willing to apply this economic model face the difficulty of measuring and reporting the value of their activities. Accounting must apply models that measure value in the framework of circulation, maintain the high value of products and materials, and control product and material flows.

Acting according to the circular economy model, economic entities will have the opportunity to measure and reflect on the balance sheet not only the use of their resources but also the impact of the progress of their circulation. In this way, circular reporting will create increased accountability to act according to the circular (Accounting, Coalition Circular, 2022).

Executives will consider circularity as a strategic issue and investors will use this information in their decisions informed by the data provided on the turnover performance of the companies in which they are investing. However, accounting works circularly in the legal and financial regulation of the linear economy and therefore circular accounting is required to work on "creative" solutions.

Accounting for the linear economy uses the monetary scale while circular economy accounting, which is about making tangible the "intangible" impacts, must use the monetary and non-monetary scale (Fischer et al., 2022). The current accounting content does not consider renewable resources, the accounting cycle is not integrated and the link between economic activity and the environment is not evident. Natural and renewable resources, according to current accounting practices, are not considered assets and nothing is mentioned about considering social and environmental responsibility as liabilities of economic entities.

### 4.    ACCOUNTING CONCEPTS AND APPLICATIONS CHALLENGES AND POSSIBLE SOLUTIONS

Regarding financial reporting in a circular economy, there are many obstacles to overcome as shown in Table 1.

Reporting for circular economy needs improvements that have to be oriented by the results of the analyse of the effects and obstacles related to the transition from linear to circular economy.

**Table 1.** Challenges of CE to reporting

| Category | Effects and hindrances |
|---|---|
| Financial statements | - Historical cost accounting is not suitable for circular assets without a purchase price.<br>- The continuity hypothesis related to the valuation of assets may depend on the circularity. |
| Risk reporting | - Risks in the manager's report, are generally focused on the short term.<br>- Risks related to not being able to handle the transition to CE are not currently disclosed in the reports. |
| Rules for reporting CE | - In the absence of the rule, the reporting of CE is usually done voluntarily in which information about CE is reported, but it is difficult to compare. |

**Source:** Muhamed, 2022

## 4.1. Financial Statements

Circular economy uses leftovers generated in the production process and the term residual resources replaces the term "waste" used for them in the linear economy. The term residual value changes the mindset on the hidden value of resources. In the CE the assets are valued on the balance sheet with their historical value, while in the case of the circular economy, it is difficult to value the residual resources for the assets are valued based on the purchase price which in the case of reuse can be zero because they are not purchased but collected during or at the end of the production process.

There are four accounting methods identified to value residual resources but there are no standardized and comprehensive guidelines of circular accounting, there are no accepted standards and therefore the assets from the circular economy will be off balance and in this way, the accounting value of the economy decreases. Furthermore, International Accounting Standard No. 13 does not address the issue of residual resources or other circular economy resources and therefore fair market value cannot be applied (The IFRS Foundation, 2011).

Referring to the income statement the revenue and costs are measured in the same way in both economic models. Explanations of different aspects of circular economy can be clarified and separate the business practices and revenues for every economic model. The distinction between two kinds of revenues (circular and linear) will inform stakeholders of the progress of the business working on approaching the circular economy (KPMG, 2019).

## 4.2. Risk Reporting

Models of assessing risk are linear economy-based and frameworks on risk evaluation that include non-financial aspects of climate-related risks and neglect the ones related to resource use and scarcity. Reports consider risks in the short term of the continuity of an economic unit. Circular businesses must redefine the concept of risk and include reporting for it the non-financial and long-term impact of its activity, more specifically, social and environmental well-being (Circle economy, 2021).

On the other hand linear economies may face financial and liability risks if they remain linear because they may lose their market positions by not meeting the CE requirements and in this way they have to assess the linear risk. Reporting of linear risks should be according to the methodology provided by The Linear Reporting Standards for the determination of the exposure to linear risks (European Commission, 2019).

## 4.3. Rules for Reporting CE

The Global Reporting Initiative in cooperation with the International Financial Reporting Standards Foundation has realised some guidelines and to bring sustainability into financial disclosure. But these are frameworks that allow the users to create their own indicators and standards and in this way make difficult the comparison between companies. Furthermore, while financial reporting is mandatory reporting, sustainability and integration of social and environmental impact on the financial reporting is voluntary. (Accounting, Coalition Circular, 2022). Standardized circular accounting and reporting will influence better collection of data and will guarantee their comparability which will influence their accountability and support investors in their decisions by giving standardized information on their circular performance.

## 5. CONCLUSION

Circular accounting has an important role in enabling the successful implementation of the circular economy business model and making it a reality. The accounting and reporting techniques of the linear economy create obstacles to implementing a circular economy that has many benefits and opportunities for economic entities by allowing the reuse of economic value. In the process of transformation from a linear to a circular economy complex changes are required to push it forward and unlock business opportunities.

Accounting concepts and applications offering information on the value of the economic unit, on its internal and external stakeholders need to be adapted to the new way of doing business representing renewable resources, the impact of business activity on the environment, and social inclusiveness (bringing non-financial indicators alongside financial factors), the change on asset valuation methods based on the long term approach where materials are used as long as possible, introduction of the concept of residual instead of waste, evaluation of and risk reporting.

For a successful implementation of the circular economy, new accounting approaches must be applied to make calculations on inputs and outputs and the reuse of resources. The fair value measurement framework under IFRS 13 is difficult to apply to a circular entity because it does not address waste issues. To overcome a solution will be to conclude agreements or contracts with suppliers for the value of the waste because there is no fair market for them and thus the price cannot be set by supply and demand.

Accounting has an important role in the transformation process from line to circular, but its complexity requires cross-sectorial cooperation of all actors, political and decision-making institutions, company leaders, investors and customers, accountants, regulators and financiers.

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# Business Management Theories in Classical Italian Accounting: The Historical Contribution of Fabio Besta

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**Abstract:** *The study aims to reconstruct the historical contribution to the knowledge of business management that Fabio Besta, one of the leading Italian accounting scholars, offered to the country between the 19th and 20th centuries. This contribution derived both from his scientific elaboration and his teaching activity, thanks to which his principles were transmitted to the young students of the schools in which he taught. From a methodological point of view, the research made use of a literature review focused on the author's main works, to capture his major reflections on the subject of business management. The results of the study show how Fabio Besta's theory revolves around the principle of economic control, understood as continuous monitoring and careful measurement of the economic and financial performance of the enterprise. Moreover, the research shows that the author's theoretical approach has been strongly influenced by new needs coming from companies.*

## 1. INTRODUCTION

In the current context, where businesses increasingly have to cope with disrupted times, business management must be more attentive than ever and based on sound principles. In Italian history, these principles have been introduced by accounting studies that first dealt with the enterprise as a phenomenon to be governed rationally. This research aims to analyze the contribution that Fabio Besta (1845-1922) made to the development of managerial theories at a historical moment when Italy was experimenting with the beginning of the first forms of modern production. Fabio Besta is still one of the most studied scholars of Italian literature, which considers him the father of modern accounting. Similarly, the centrality of Fabio Besta is also recognized by international literature which includes him among the most representative authors on the subject of accounting. This research reconstructed the business management principles developed by Fabio Besta in the second half of the nineteenth century and the first decades of the twentieth century. Although almost one hundred and fifty years have now passed, these principles represent laws of general application, even today.

The instability of the current context – in many respects similar to the turbulence that affected Italian history during the nineteenth century (revolutions, insurrections, wars) – increases the economic risk to which all organizations, public and private, are normally subject. The provocative phenomena are of different types but they all require companies to activate suitable strategies to manage the firm according to rules that preserve its long-term profitability (Onida, 1960). These strategies, both in ordinary conditions and in disturbed situations, are based, ultimately, on the principles of good corporate governance. Fabio Besta has made a fundamental contribution to the knowledge of this topic since he has developed particularly innovative and cutting-edge rules.

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The research starts from the usefulness of deepening the Italian management studies of the 19th century, retracing them through a thinker who witnessed a significant phase of the country's economic development. In this regard, the literature has already analyzed in depth the nineteenth-century evolutions of accounting, also in light of the impressive events – the unification of the Kingdom and the birth of large businesses – that occurred in that century (Sargiacomo et al., 2012). At the same time, while the majority of studies have fully explored the topic in terms of accounting, there are still research gaps, or spaces of investigation susceptible to further observation, the analysis of which can be useful in providing an overall picture of the theoretical developments of Italian corporate thought. The study is structured as follows: Section 2 concerns the related literature and the research hypothesis, Section 3 presents the methodology, Section 4 exposes the crucial points of Fabio Besta's thought and Section 5 contains the summary and illustrates the conclusions and main limitations of this research.

## 2. RELATED LITERATURE AND RESEARCH HYPOTHESIS

Fabio Besta was one of the major accounting scholars, both of private companies and of the State (Andrei et al., 2017), and represented a basic figure not only for his time but also for subsequent theoretical developments. As Galassi and Mattessich (2004) observed, Besta represented, with the "patrimonial system", the premise for accounting to evolve towards the "income system". In fact, until the end of the nineteenth century, accounting and its techniques represented the dominant theories in Italy, and bookkeeping constituted the central theme for business scholars. On the contrary, theories regarding firm control were decidedly less developed and Fabio Besta laid the conceptual foundations necessary for this development to take place. He described accounting as a science of control, stating that: "This control, in any type of enterprise, is the object of accounting. In theoretical terms, accounting studies and enunciates the laws of such economic control in firms of all kinds, so that it can be truly effective, reliable and complete. In practical terms, accounting is the orderly application of these laws" (Besta, 1880, p. 20).

Thanks to the depth of the concepts with which he interpreted the firm in its many dimensions, Fabio Besta, as De Roover (1955) observed, is considered by many to be the author of the Bible (*La Ragioneria*, 1909-1910), not only in terms of accounting history but also as a useful tool for understanding and solving practical problems. This view is also confirmed by Chatfield (1982), according to whom "Besta gave perhaps the first coherent view of the firm as the center of accounting attention and as the ultimate basis for judging the merits of accounting procedures" (Chatfield, 1982, p. 208).

As Ghidiglia (1912) highlighted, Fabio Besta had clearly understood the concept of economic administration underlying that of control and concerning the governance of wealth and economic goods. The relevance of the theme of control applied to economic administration is also confirmed by its presence in the teaching material dating back to the period 1882-1921, prepared by the scholar for university students of Accounting, Bookkeeping and State Accounting courses (Sattin & Coronella, 2022). Similarly, Alfieri (1924) underlined the articulated vision that Besta had of administration, distinguishing three essential moments – management, direction, control – in continuous movement. As management changes, the direction of the firm must also change, and control must adapt accordingly. The connotations of control are affected by the different degrees of complexity of the firm. It is simple in small businesses, where the number of people involved in the various types of work (production, bookkeeping, etc.) is generally

small. Control, however, gradually becomes more demanding as the size of the firm increases since in large enterprises the number of people, the number of operations and the variety of jobs multiply, making more careful management and deeper control necessary. However, as Paolini and Soverchia (2017) highlighted, while operations and activities vary depending on the type of firm, the economic control theorized by Besta represents a transversal and common phenomenon that affects all enterprises. Furthermore, D'Onza (2008) underlined how, in Besta's vision, control consisted in two closely connected elements, namely the recording of firm facts and the regulation of work, including supervision.

Based on the introductory considerations and, in particular, the theoretical gap found and the conclusions reached by the literature, the research hypothesis (RH) that guided this study is the following:

RH  In the complexity of the phenomena that made the 19$^{th}$ century a disrupted and unstable period, no less than the current one, the conceptualizations on good business practices testify to the centrality of Italian accounting in the definition of essential principles for the existence of enterprises and for their profitable operation.

## 3.  METHODOLOGY

As regards the choice of the reference period, the 19$^{th}$ century represented, as noted above, an era of particular relevance in Italian history since it corresponds to a turning point in accounting and management studies. For the development of the research hypothesis, the reconstruction of the management principles developed by Fabio Besta was based on the literature review of his founding works. The literature review represents a particularly suitable method for the reconstruction of the dominant theories on a given topic or in a given space-time context and is even more suitable where the investigation makes use, as here, of a historical approach. This usefulness was highlighted by Hart (1998), who, among the various functions of the literature review, indicated: (a) the formulation of answers to a variety of research questions, including the origin and definitions of the topic investigated; (b) the solicitation of new research questions. Similarly, Massaro et al. (2016) found that the literature review is particularly functional to the historical approach, being able to suggest to the researcher a series of specific research questions inherent to the structure of knowledge and its evolution over time.

During the first reading of the works, the thematic parts relating to the research object were identified through the index. Subsequently, the identified parts were subjected to a complete reading. Furthermore, the research benefited from the presence of the digital version of the works, which not only facilitated the localization of the concepts but also allowed a more complete mapping than that obtainable with the use of paper supports and manual selection. In relation to the author's choice, it was induced, above all, by the consideration of the contribution that the analyzed scholar gave to the topic of this investigation. Furthermore, the undisputed centrality of Fabio Besta for Italian business disciplines and especially for the birth of scientific accounting, to which he contributed more than anyone else (Coronella, 2022), played a decisive role. In this regard, Antonelli and D'Alessio (2011, p. 85) recall how the era and the author considered here have attracted, more than others, a vast interest from historians. In the face of 87 contributions dedicated to the examination of the accounting practices of the period, the widest attention was paid to the "undisputed protagonists" of the time and, among these, especially to Besta, studied in approximately forty monographic essays.

## 4.  MANAGEMENT AND ITS CONTROL IN THE THOUGHT OF FABIO BESTA

Through this broad vision of firm problems, Fabio Besta initiated the formation of an awareness of the enterprise as a unitary phenomenon, to be observed as a whole and monitored as such. It is no coincidence that the scientific breakthrough necessary for the formation of this consciousness occurred in Italy a little later, thanks to Gino Zappa (1879-1960). He was a pupil of Fabio Besta and from the master he learned above all the method of observing reality and the basic rule according to which theories must have practical utility. Accounting reached its "golden" (Coronella, 2007) peak in the nineteenth century, and Fabio Besta can be considered the scholar who developed the concepts necessary for the transition to the next evolutionary phase. This transition, made by Gino Zappa, expanded accounting until it became a new and unitary science (Alexander & Servalli, 2011), through Business Economics (Zappa, 1927). If on the one hand Fabio Besta was the scholar who began the process of transformation of accounting completed by Gino Zappa, on the other he was not the first Italian author to deal with business management problems but was preceded in this by Francesco Villa (1801-1884).

However, although Francesco Villa can be considered the founder of the first Italian theories on business management, Fabio Besta integrated these theories through the formulation of concepts relevant to the guidance of firms. Based on these concepts, subsequent theories could evolve towards the gradual affirmation of the Italian science of management. Fabio Besta was the founder of the Venetian School and defined a corpus of principles on which company management must be based to effectively pursue and efficiently achieve its goals. These principles are aimed at orienting the firm towards behaviors and actions that are neither contingent nor speculative (Corticelli, 1987), but, on the contrary, thoughtful and aware, and therefore free from improvisation and detached from the search for extemporaneous successes.

At the end of the nineteenth century, precisely in conjunction with the first edition – dating back to 1891 (De Dominicis, 1962) – of Fabio Besta's most important work (*La ragioneria*), Italy began to undertake, not without difficulties, delays and contradictions, the path of capitalist development. National unity had finally led the country towards a process of economic, social and legal modernization, despite the antinomies (see the South) inherited from a past seriously marked by political fragmentation, feudal reminiscences and foreign domination. At the end of the century, Italy began a process of industrial development which represented one of the country's greatest strengths. In this period, the first large companies capable of withstanding foreign competition were founded, despite being held back by the limited internal market and strongly supported by state orders (Detti & Gozzini, 2000). Among these companies, it is worth mentioning, for the steel sector, Terni (1884), Siderurgica di Savona (1900) and Ilva (1905), and, for the heavy mechanics sector, Ansaldo (1853) and Breda (1886). For the chemical sector, Pirelli (1883) and Montecatini (1888) were particularly relevant, while for the automotive sector, Fiat (1899), and, in the early years of the twentieth century, Lancia (1906) and Alfa (1910 ) represented some of the most significant realities. The companies just mentioned not only had a notable role in the national economy but also reached dimensions and structural connotations that were radically different and new – in short capitalist – compared to the small businesses, however still numerically prevalent, on which the Peninsula had been based until then.

The solicitations that Besta was able to receive from the entrepreneurial reality were therefore even more intense than those that animated the environment of previous scholars. His theory had the possibility of observing larger companies, for which scholars now had to develop more complex principles of good governance. It is also necessary to remember the dynamism that characterized Venice

after the annexation of Veneto to Italy (1866) since Besta lived and taught in this very city for almost fifty years. In Venice, from 1872 to 1919, he was a professor of accounting at the "Scuola Superiore di Commercio" (Higher School of Commerce), and of that school he was also Director from 1914 to 1917. Following the annexation, Venice emerged from the marginal position into which – after the commercial successes that lasted throughout the Late Middle Ages – it had slowly fallen. In fact, the city achieved a new economic vitality thanks to which it regained "its ancient role as a commercial emporium" (Brunetti, 2018, p. 83). In those years, Venice hosted foreign capital and companies such as the Mulino Stucky and the Cotonificio Cantoni, until it became, in the first decades of the twentieth century, a true industrial city. The socio-economic context in which Fabio Besta's thought was formed (Sargiacomo et al., 2018) was therefore different and perhaps more stimulating than that of which his predecessors were observers and interpreters.

As regards Besta's works, this study has selected two publications: La Ragioneria. Prolusione letta nella solenne apertura degli studii per l'anno scolastico 1880-81 alla R. Scuola Superiore di Commercio in Venezia (Besta, 1880) ("Accounting. Prolusion read at the solemn opening of studies for the 1880-81 school year at the Royal School of Commerce in Venice (hereinafter Prolusione), and La Ragioneria ("Accounting") (first edition 1891; second edition 1909, 1910 and 1916) (Besta, 1909, 1910a, 1910b), published in the three volumes that make up the first part. In Besta's project, the work was to be made up of three parts, dedicated respectively to General Accounting, Public Accounting and Applied Accounting; however, only the first of them was published (Billio et al., 2018). Although the number of publications examined here is small, it still includes the author's most significant works and is therefore at least sufficient to represent the founding nucleus of Besta's reflection on corporate governance.

Specifically, the *Prolusione* is particularly pertinent to the topic since it illustrates the scholar's thoughts on the relationships between theory and practice. Similarly, *La Ragioneria* constitutes Fabio Besta's major work and therefore includes his most central reflections. In the *Prolusione*, Besta understands corporate management as the governance of phenomena, transactions and relationships relating to accumulated capital. In the scholar's vision, the sum of those phenomena, transactions and relationships was the firm. The company director is required to have "managerial intelligence" (p. 12), i.e. the ability to coordinate and direct administrative work, in compliance with the requirements of the authority (which in Besta is synonymous with capital ownership). To achieve the pursued goals, always and in any case consisting in the production of wealth, economic work is divided into three essential parts, or "primary moments" (pp. 15-16): management, which operates directly given the goals; direction, which informs, regulates and governs economic work; control, which studies economic work in its causes and effects to manage it knowingly. This last function was particularly significant in the thinking of Besta, who considered it necessary in every phase – previous, concurrent and subsequent – of the administrative action.

Besta's main teachings on good governance practices concern control, thanks to which the firm can act efficiently and effectively. As regards efficiency, although control cannot add wealth to the firm, it can and must protect the existing one, working to avoid any useless consumption or waste of resources. At the same time, effectiveness is achieved by organizing economic work in such a way that everyone is assigned a task and that everyone's work is always monitored, in order to ensure that it corresponds to its goals. Although these notions are central to the author's thinking, there is a further circumstance that should not be forgotten. Besta, in fact, was decidedly against the idea – which he firmly denied – that a real science of business administration could exist and be filled with rules and principles. Unlike the thinkers favorable to that idea, according to Besta the impossibility

of conceiving a science of administration derived from the exorbitant vastness that such a science would have to possess in order to include all the fields involved in administrative action, from sociology to the technical sciences (Prolusione, p. 26).

However, the attitude described above does not exclude the possibility and necessity of formulating principles of good administration. Rather, it indicates how Besta's opposition to the construction of a unitary administrative discipline capable of containing an enormous amount of precepts derived from the greater complexity of the companies that, compared to previous scholars, Besta faced. This complexity was probably the reason that led the scholar to suggest the opportunity for multiple sciences, including accounting, to cooperate in order to guide such vast organizations in such a dynamic environment. This environment was in fact conceived by Besta as a context "in which wealth, and particularly financial wealth, has grown so much and its changes have become so rapid, in which many colossal enterprises have appeared and flourish, in which state budgets become so big." (Prolusione, p. 75). Despite this express rejection, Besta nevertheless recognized and admitted the existence of sciences that guide economic administration and equally accepted that harmony should exist between accounting and these sciences, both being governed by the same principles. Instead, what Besta resolutely denied – probably due to the refusal of a subordinate position – was that accounting could be incorporated by the aforementioned sciences, thus losing its theoretical autonomy.

In the work *La Ragioneria*, the essential role of economic control, to whose effectiveness and completeness the laws enunciated by accounting science are dedicated, emerged with even clearer evidence. In this work, the science of control is fully illustrated and its centrality for the management of the firm allows it to be assimilated, as observed in the literature (Coronella, 2018), into the science of economic administration. In this path, i.e. in the expansion of the field of action of accounting which has led it to also be the science of economic control, and no longer just of reporting, lies one of the major scientific advances made by Besta. Within this process, the vision of accountkeeping as instrumental to the best feedback represented a further advancement. Despite Besta's aforementioned opposition to a single science of administration, *La Ragioneria* contains numerous references to principles that directors cannot ignore, as they are essential to regulate this administration and its modifications. As recalled by De Dominicis (1962), in *La Ragioneria* book there are illuminating pages on management, in which "the economic administration of the firm is compared to a living organism, in order to underline that its functions constitute a «coordinated system of actions» subject to «simultaneous and successive changes» and to a «continuous adaptation to external conditions», i.e. to the conditions of the surrounding world" (p. 101). Finally, the role of business disciplines in developing principles based on reality, and aimed at consciously guiding it, is further confirmed by the close connection that in Besta's thought must always exist between theories, facts and practice. Accounting must move away from metaphysics, and like all applied sciences it must deal with real facts and respond, with care, to the needs of practice (*La ragioneria*, I, p. 144).

## 5. CONCLUSION, LIMITATIONS AND FUTURE RESEARCH

The investigation conducted here has highlighted how Italian accounting, observed through one of its numerous and illustrious exponents, has expressed, since the origins of capitalist enterprises, conceptions of corporate governance rigorously based on the contemplation of truth. Besta was constantly occupied by the problems of good corporate governance and adopted an analytical approach evidently conditioned by the economic environment in which he lived. In fact, to fully understand Fabio Besta's thought and the modernity of his theory, consideration of the surrounding environment cannot and must not be omitted since accounting sciences base their elaborations

above all on this environment. Empirical progress represents, in fact, an inexhaustible source of inspiration and, at the same time, a testing ground for theories that deal with businesses not in the abstract but in their real manifestations. Besta's approach was inspired, also for the reasons stated above, by a unitary vision of the firm, whose survival is ultimately based on the economic control of the administrative actions that arise from the management of accumulated capital. The reference to an accumulated capital, if on the one hand is the expression of a still markedly patrimonial approach, on the other perhaps reflects the new and different centrality that capital took on at the dawn of Italian industrialization. In this regard, Besta's vision of capitalism is eloquent. Although the author never used this term, its presence is evident in the *Prolusione* in which Besta described it as a separation between the ownership of the company and its administration (p. 12).

In evolutionary terms, as noted, Fabio Besta surpassed his predecessors. In this regard, D'Amico and Palumbo (2012) recall the weaknesses of "pre-bestano" accounting which, especially in the first half of the nineteenth century, was discontinuous, sterile and limited to eminently technical issues. In this context, D'Amico and Palumbo recognized the distinctive value of some scholars (such as Francesco Villa who stood out within the Lombard School of which he was part), but at the same time they also found an insufficient in-depth study of new points of investigation and a regression to accounting issues. In this study, in which the theme of the comparison between "bestani" (of Besta) and "pre-bestani" (before Besta) approaches was not explored in depth, the central element that emerged from the analysis is Besta's achievement of theoretical positions useful for leading companies, through central precepts for nineteenth-century conceptions of business management. Table 1 summarizes the most relevant principles that this study has found in Fabio Besta's theory.

Table 1. Business management in Fabio Besta's theory

| Field of analysis | Notion | Principle |
|---|---|---|
| Administration | Administration is the government of phenomena, transactions and relationships relating to an accumulated capital so that they become effective instruments for the preservation of this capital. | Business operations must be oriented towards the production of wealth. |
| Business management | Economic work must be directed with knowledge, accounted for and studied in its causes and effects. To this end, it must be constrained so that it can proceed in the most advantageous ways. | The production of wealth must be achieved in conditions of economic advantage. |
| Skills of the company directors | Wisdom, economic work. | Company leaders must possess knowledge and industriousness. |

**Source:** Own research

The contribution that this research can offer to theory lies in the further in-depth analysis – compared to existing studies – of corporate and, in particular, management issues, which one of the major Italian scholars developed between the second half of the nineteenth century and the early twentieth century. The element of novelty, or at least of distinction, compared to these studies is represented by how the in-depth analysis was carried out. This research, in fact, not only analyzed Fabio Besta's major works but also took into account the economic environment in which the scholar's ideas developed.

From a practical point of view, the contribution of this study consists in having indicated teachings and precepts that have significant managerial implications and can fully inspire the concrete action of company leaders and the skills with which they must be equipped. The principles of good

administration developed by Fabio Besta show, in fact, a marked relevance and are still able today to act as a guide for the definition of managerial styles and conscious leadership models.

As regards the limits of the proposed reconstruction, the first critical issue lies in the small number of works analyzed, from which an equally limited set of central principles emerged (Table I). Although the results are significant, and probably fundamental, this field of research would certainly benefit from further in-depth analysis useful for identifying new themes. A second limitation of the analysis is to be ascribed to the absence of the evolutionary profile. Concerning this theme, a better understanding of Besta's interpretations could benefit from a dynamic investigation aimed at highlighting the determining factors of the development of business disciplines during the 19th century and the first decades of the 20th century. Although the analysis was carried out highlighting some correlations with the context conditions, there are notable intermediate developments – historical (the policies of the governments from Camillo Benso to Giovanni Giolitti) and economic (monetary problems, banking crises) – which deserve adequate discussion.

From the limitations indicated, fruitful developments in future research could derive, useful for appreciating even more deeply how (also) nineteenth-century business theories have always addressed concrete enterprises and practical problems, to give to the country, through teaching and training of the young generations, tools suitable for interpreting and managing the economic reality.

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# Digitalization of Insurance Sector: Issues and Challenges in Western Balkan States

Armanda Tola[1]

**Abstract:** *The digital transformation has increased its relevance for insurance companies in recent years, as one of the main drivers of insurance market development. As with any revolution, it comes with opportunities and challenges, especially for the information technology departments to increase the effectiveness of business processes. This paper aims to provide a comprehensive overview of digital technologies and their capacity implemented in the insurance industry in some of the Western Balkan states Albania, Kosovo\*, and North Macedonia. The data was collected from a survey initiated by Deloitte in Poland called "Insurtech 2022 Survey" which was distributed to some selected Central European states, to identify industry trends and examine the needs of insurers and capabilities of Insurtech companies. This study uses results from primary data gathered from this survey which was delivered to all non-life insurance companies in Albania, Kosovo\*, and North Macedonia and was answered by more than 70% of them. The aim was to examine the industry trends and determine both the needs of insurers and the capabilities of the insurance industry. The paper discusses Insurtech tools implemented in these business processes, evaluates the effectiveness of their use, and identifies the associated risks. The conclusion revealed that North Macedonia has spent and plans to spend more than the other is the most significant study with Insurtech companies, in positive line with the volumes of gross annual premiums. The paper also discusses Insurtech tools implemented in non-life insurance companies, assesses the effectiveness of their use, and identifies the associated risks. The results illustrate three major tasks the industry is facing: the risk of unauthorized access or cybersecurity is the most significant risk according to the respondents, followed by the challenges of improving the customer experience, and business processes, offering new products, and preparing for competition with other industries. Moreover, key areas of adaptation according to this study are identified such as the effect of information asymmetry and risk assessment, and the implications of new technologies. The results emphasize the importance of a holistic digital strategy to be implemented in the future in all these states.*

## 1. INTRODUCTION

The expansion of big data technology, referred to in the framework of finance as fintech has increased efficiency, market dynamics, and competition allowing more transparency and comparability, reducing transaction costs, and widening the customer area services. Digitization begins with information and communication technology (ICT) in the insurance industry to reduce costs and increase revenues. Research shows that digital insurance companies rely primarily on integrating information technology.

Understanding how digital technologies contribute to efficiency is a key focus in information management. Digital technology should not only be viewed as a cost but also as an investment

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that can increase revenue. Information systems can significantly affect organizational performance and are linked to intangible assets related to their operations and performance, which in turn influence organizational capabilities in various ways. The opening for large companies stands out. One small fintech group is Insurtech, which is focused on using technology to transform and grow the insurance industry.

Digitization includes many research areas such as digital transformation in the financial services sector, the impact of digitization on the insurance market, the development of intelligent data processing systems, machine learning, digital insurance, digital security, Big Data, technology, and innovation in insurance.

In the financial markets, we have noticed the role of digitization in many aspects such as broadening competition, financial service access, and consumer choices. The use of "digital insurance" is a term that refers to the integration of information technology into the insurance industry. The digital transformation of the insurance industry is described through the Digital Transformation Framework, focusing on selected German insurers.

Digital customization for insurance companies was forecasted to be fully completed by 2020 (Mathes, 2016). Nevertheless, in this aspect, overall, a lot of work needs to be done not only in Western Balkan states but in many other developing states in the world. Its potential is still unexploited as the InsurTech sector grows its relevance in each insurance company. Western Balkan states have relatively poorly developed insurance sectors (Kozarevic et al., 2011). Some of these states had for several decades a centralized economy, where insurance companies were state-owned and the state itself had the market monopoly. As democracy was set, these companies began their transformation to private ownership and new insurance companies with mostly foreign capital, the insurance industry started to develop slowly (Curak et al., 2009; Kozarevic et al., 2011; Pye, 2005; Rogers et al., 1988).

Digitization in insurance as in many other industries is driven by factors like change, uncertainty, complexity, and ambiguity. As technology improves, there is a necessity for reducing costs, and the use of technologies such as Big Data, artificial intelligence, predictive modeling, wearable devices, telematics, and the Internet of Things (IoT) to enhance value.

The financial industry is moving toward customer orientation and customization which has been growing considerably (Alt & Puschmann, 2012). On the risk evaluation level, IT and data enable a more fine-grained risk assessment by insurance providers. For example, a change in the behavior of customers to use wearable technology for self-improvement and self-monitoring creates new opportunities for health and life insurance. Today, most data arising from connected products is not even used by the manufacturer itself (McKinsey, 2015). For instance, wearable device technology in healthcare can contribute to treatment effectiveness, medication adherence, and patient experiences, helping health insurance companies target their possible clients because of their high activity levels. Nevertheless, the companies might not be profitable to financially subsidize them, as they would act similarly without the device (Lehrer et al., 2021).

Another case is with motor insurance premiums which typically are charged for one year. This pre-payment method, as you pay the same amount regardless of using it, wouldn't be applied if the price were set from a telematics device (Azzopardi & Cortis, 2013). The innovative approach of this device allows the insured vehicle and the insurer's information management

system to communicate directly. The evolution of AI technology enables insurance companies to create flexible pricing methods, instead of charging 12 months- prepayment.

The digitization process in the insurance sector is closely related to information and communication technology (ICT). Digitalization is a crucial topic to be studied both from the theoretical aspect as well as from the practical one (Heeks, 2017). The use of "digital insurance" is a term that refers to the integration of information technology into the insurance industry. The digital transformation of the insurance industry is described through the Digital Transformation Framework, focusing on selected German insurers.

The insurance industry is concentrated on risk transfer (Trowbridge, 1975). The insured parties transfer their risk to an insurance company, known also as the insurer, which in return evaluates the risk and charges a corresponding premium. In risk assessment, risk variables can be enriched with sensors and connectivity (McKinsey, 2015). In particular, vehicles, houses, and factories are digitally equipped and embrace properties such as being programmable, addressable, sensible, communicable, memorable, traceable, and associable (Yoo, 2010).

According to many studies such as Naujoks et al. (2017), digital technology affects business operations and research interest in information systems is increasing nowadays. Digital technology does not represent a cost measure but should be seen as an investment in the revenue growth of the company and its organizational performance. Information systems can significantly impact organizational performance because they are associated with a variety of intangible assets related to their operation and functionality, which in turn affect organizational capabilities in various ways. In the financial markets, we have noticed the role of digitization in many aspects such as broadening competition, financial service access, and consumer choices.

Insurtech as part of financial technology is defined as a set of innovative IT and insurance services financial technology creates and improves new financial services to respond to the increasing demands of customers, as online retail platforms are becoming the main generator of sales globally. Before the COVID-19 pandemic, the insurance sector did not implement digital technologies as rapidly as the banking sector. Even though some steps of improvement were noticed before the pandemic, some insurers started to enter the digital area to customize and increase the efficiency of their services, and on the other hand technology industry introduced pivotal changes into the industry (Klapkiv & Klapkiv, 2017). Nevertheless, after this crisis, the insurance sector in the same line as the other sectors was obliged to stimulate their digitization efforts. Digitization in insurance can enhance the insurance value, as well as facilitate interaction with the customers.

Other studies were focused on other areas such as Nunn and O'Donnell (2020) on consumer perceptions of car insurance, Daly (2020) on the fraud trends during the recession, and Sheehan (2020) researched the relationship between insurers with BigTech-s and InsurTech.

Researches show that clients have switched their behavior to the effects of digitalization. For instance, 21% of consumers in the US have admitted to having wearable technology products (PricewaterhouseCoopers, 2014). As the world has emerged into digital communication, 37% of communication daily is now digital, also the majority of shopping information that helps in costumer's decision-making derives from digital sources, as clients have on average 2.5 devices that are connected to the internet (Esche & Hennig-Thurau, 2014).

The research on the implementation and development of InsurTech has accelerated recently due to the widespread usage of big data (Trunina et al., 2019), but there is a lack of study for Western Balkan states. Carbone's research (2016) studied the origin of InsurTech, its effects on the development of the insurance market, the use of financial technological tools in the insurance market, and the prospects of Insurtech after the COVID-19 pandemic, meanwhile, Cartago et al. (2020) aimed to emphasize the possibilities of technical modernization of insurers.

At the risk level, IT alters risk parameters, e.g., objects get enriched with sensors and connectivity (McKinsey, 2015). Specifically, cars and properties are digitally equipped and offer digital features that help them to be able to program, trace, associate reach, communicate and memorize (Yoo, 2010).

In the insurance industry, a significant part of customer interactions is said to be digital by 2020 (Mathes, 2016). Hence, much of the potential remains unexploited supporting the growing relevance of InsurTech within the insurance industry. In summary, the customers, the risks, the insurance providers as well as their intersections are affected (e.g., the relationship of customers to the risk, the assessment of the risk by insurers, and the relationship between customers and insurance).

Coletti (2018) emphasized that the digitalization process in the insurance sector goes in the same line with technological development and the advantages of cost-cutting. Bohnert et al. (2019) conducted a study with 41 public insurance companies in Europe to study the relationship between the use of digital technology and its business success, using the market value of companies as a proxy. The research showed that insurance companies that had implemented digital internal procedures and information technologies in customer interfacing had approximately 8% higher value than companies that did not use digitalization procedures. In conclusion, the clients, the insurer and the whole risk management actors (the relationship of clients with insurance companies or towards risk, the assessment of risk events by insurers, and the relationship between customers and insurance companies).

## 2. METHODOLOGY

### 2.1. Data collection

This study uses the survey-based instrument as the main instrument in this study, with many questions used to achieve the study objectives. The data was collected by distributing a survey initiated by Deloitte in Poland called "Insurtech 2022 Survey". Initially, this survey was distributed to some selected Central European states, to identify industry trends and examine the needs of insurers and capabilities of Insurtech companies. The European Commission enlargement strategy is defined as Western Balkans states: Albania, Bosnia and Herzegovina (BiH), Montenegro, Croatia, Kosovo*, North Macedonia, Former Yugoslav Republic of Macedonia and Serbia.

This study uses results from primary data gathered from this survey which was delivered to all non-life insurance companies in Albania, Kosovo*, and North Macedonia.

The history of insurance in North Macedonia and Kosovo* is older than that of Albania. The study's target population consists of getting feedback from and was answered by more than 70% of them. This study uses results from primary data gathered from this survey which was delivered to all non-life insurance companies and was answered by more than 70% of them. The

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\*      Under the UN Resolution 1244.

survey is divided into three parts, the first part aims to investigate the experience that insurance companies had with Insurtech companies in their projects, and the second part is focused on the nature of the cooperation with Insurtech-s. The final part is dedicated to some relevant Information about the company. The author also used secondary data resources like journal articles, and internet resources to ensure that the instrument will serve its aim.

## 2.2. Method of data analysis

This research used the Statistical Package for Social Sciences (SPSS) to analyze the data. Descriptive analysis tools, such as the frequency, mean, and mode, were used to analyze some of the study questions. To measure the respondent's perception of several issues or the number of occurrences different qualitative scales, and frequency distributions were used. This method was perceived as the most efficient as it enriches the analysis of the study results with relevant information.

## 3. RESULTS

Figure 1 explains the amount of budget given in thousands of euros; the main items used to investigate the respondents' main answers about their financial behavior. It is crucial to start discovering the amount of budget they have spent on collaborative projects with Insurtech companies more than in other states. Moreover, they plan to strengthen their collaboration by also increasing the amount of euros that these companies intend to invest in.

There is a clear indicator that the non-life insurance companies of North Macedonia have entered into more collaborative projects than the other states (Albania and Kosovo*). The insurance companies highly benefit from the expertise offered by these companies. They admit that they rely more on Insurtech services than they did before.
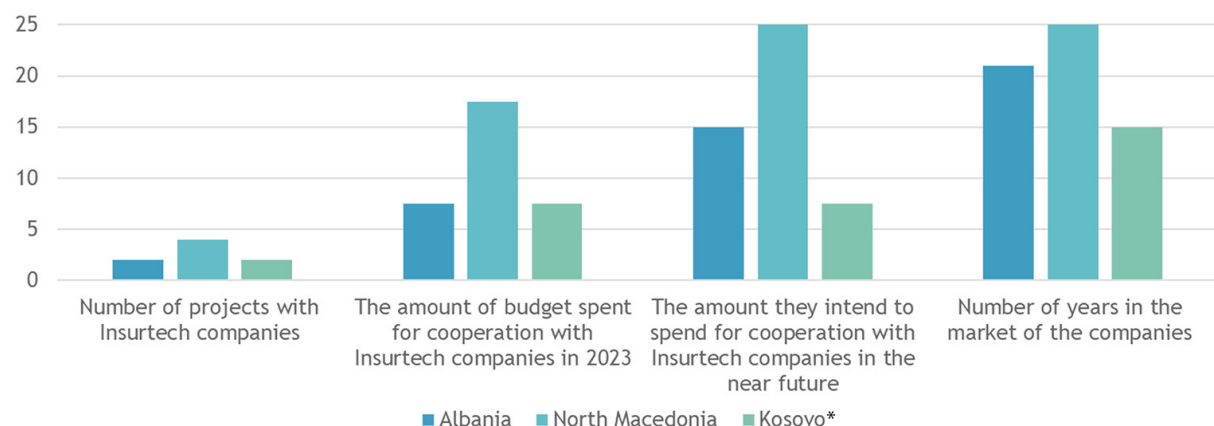


* Kosovo - under the UN Resolution 1244.

**Figure 1.** Insurtech and insurance industry collaboration
**Source:** Own research

Insurance companies responded also about the field of the project that they collaborate with Insurtechs, tools that they use mainly, the programming/query languages, and the data analytics reporting and tools. The results are shown below in Table 1. 'Java' seems to be the most used language of programming for the three states. As seen from the responses Kosovo* and Albania still lack sophistication mainly in reporting tools and data analytics skills, relying mainly on Microsoft Exel.

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\*     Under the UN Resolution 1244.

**Table 1.** Technology usage in insurance companies

| | Albania | North Macedonia | Kosovo* |
|---|---|---|---|
| **Field of project with Insurtech** | Digitalization of insurance sales and tariffs | Risk assessment, tariffs and customer experience | Tariffs, CRM and Process automation |
| **Tools in projects** | Google Cloud, IBM Cloud | IBM Cloud, Alibaba Cloud, Cloud Platforms | Google Cloud, Salesforce |
| **Programming/Query languages** | Python, Java | Python, SQL, Java | Java, Java Script, C++ |
| **Reporting tools** | PowerBI, Microsoft Exel | PowerBI, Java Script | Microsoft Excel |
| **Data analytics platforms** | Proprietary tools developed by an Insurtech company | Databricks, Proprietary tools developed by an Insurtech company | Proprietary tools developed by an Insurtech company |

\* Kosovo - under the UN Resolution 1244.

**Source:** Own research

Figure 2 shows on a scale from 1-5 how insurers will embrace innovative solutions for their products/services/ in each of the following areas during the next five years. Insurers responded less than half of the projects (38%) ended within a year and 25% took more than two years. North Macedonia insurers were reported to have the shortest time to implement a project (64% less than one year).

Another light shed from this research is how insurers are engaging with Insurtech. The respondents said that the most common ways were two: buying a technology license (71% of surveyed insurers) and buying a product/service and offering it under the insurer's brand (29%). The firm's cooperation with Insurtech companies was mainly satisfactory according to the respondents (84 %). Additionally, 77% of insurers believe that cooperation with Insurtech can advance improvement and/or automation of their processes. According to insurers, the project success is mainly denoted by the turnover rate and by new solutions to be implemented once a product has been launched (54%). Insurers believe that reducing operating expenses is the most financial benefit of working with Insurtech, (68% of respondents).
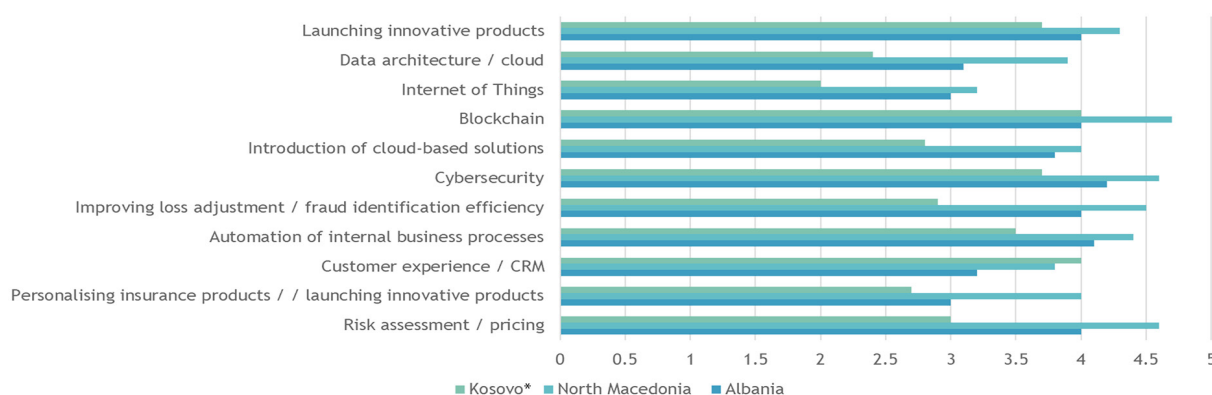


\* Kosovo **-** under the UN Resolution 1244.

**Figure 2.** Innovation in technology

**Source:** Own research

## 4.    CONCLUSION

This study emphasized the necessity of cooperation between insurers and Insurtech companies is a must, especially in fields of risk assessment and pricing, automation of internal business

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\*        Under the UN Resolution 1244.

processes, customer experience, and CRM. The main risks and challenges that insurers face remain to be budgeting and data confidentiality. On the other hand, Insurtech companies have the opportunity to fill the gaps in such fields as transparency of models, automatic production of actuarial results, implementation of policy and claims systems, cybersecurity and data analysis. According to the responses to this survey, North Macedonia has spent and plans to spend more on co-projects with Insurtech. This is in line with the increase of the gross written premium which is higher than of the two other countries.

Some potential future research directions that can be explored in the future might be to address the Gaps in Insurtech Offerings, to assess the long-term implications of increased Gross Written Premium, or the outcomes from the cooperation with Insurtech.

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# Insurance Fraud, Identification of Fraudulent Cases and Possibilities for Reducing This Phenomenon

**Klaudia Lipi**[1] (iD)

**Abstract:** *Insurance fraud is when someone gives false, incomplete, or concealed information, to an insurance company with the intention of making a profit. This may include creating illegal insurance policies or making false claims against an existing policy.*

*The types, scale and consequences of fraudulent practices in the insurance industry are the purposes why this phenomenon is chosen to be treated and analyzed in this paper. Trying to find and suggest ways to reduce it after studying fraudulent practices in specific insurance products. Different studies around the world show that more than half of insurers believe that fraud is the most important threat in the insurance industry. All insurance companies and all classes of business and customers are affected by fraud, in terms of costs incurred. For the insurers, the fraud can damage also their image and reputation. Consequently, the effort invested in countering this scourge has become essential for both insurers and customers.*

*The insurance companies are planning to use more resources to prevent and reduce insurance fraud, by designing and implementing insurance fraud reduction policies. Nowadays, they use Strategies and Technologies such as Artificial Intelligence and Machine Learning to detect and prevent fraud in the insurance industry.*

## 1. INTRODUCTION

Insurance fraud is a special type of fraud that involves an act or a deliberate misrepresentation of information that affects an insurance transaction. Insurance fraud can be committed by a person seeking an unfair or inflated return from an insurance company, or by an insurance company refusing to pay a legitimate claim or reduce an award. Insurance fraud can have serious consequences for both parties, as well as for society as a whole.

Insurance fraud can increase insurance costs, cause financial loss, endanger people's lives and property, affect the credibility of the insurance market, and create a climate of injustice. Insurance fraud can be prevented and combated through legal, educational, preventive and detective measures.

### 1.1. The purpose of the study

The scale and consequences of insurance fraud have rendered the latter significant nowadays. So, this is the main purpose, why this phenomenon is chosen to be treated and analyzed in this paper, trying to find ways for detecting, preventing and reducing it in the insurance industry.

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### 1.2. Objectives

- First, let's get to know the fraud in the insurance market worldwide and specifically in Albania.
- Studying fraudulent practices in specific insurance products.
- Find, analyze and suggest ways to detect and reduce insurance fraud, after searching different detection practices from simple ones, *the classic manual auditing model* which is more complicated and related to *the latest technological methods* used.

### 1.3. Methodology

The methodology used to achieve the goal and fulfill the objectives is the review of the literature to obtain examples and models used for fraud detection. Therefore, secondary data from official sources are used too, in order to analyze the current work related to fraud detection and suggest methods and policies for reducing it.

## 2. A SYSTEMATIC LITERATURE REVIEW

### 2.1. Financial Fraud Detection

Financial fraud encompasses illicit activities aimed at securing financial gains through deceptive and unlawful means (Kerr et al., 2023). Recent trends indicate a rising prevalence of financial transaction fraud, money laundering, and diverse fraudulent schemes, posing escalating challenges to corporate entities and industries at large (Williams et al., 2021). Despite concerted efforts to mitigate these activities, their persistence inflicts detrimental impacts on both the economy and society, resulting in substantial daily financial losses.

Historically, the landscape of fraud detection has been dominated by manual methodologies, which are characterized by inefficiency, high costs, and inaccuracies. In light of technological advancements, the application of artificial intelligence (AI) techniques, encompassing machine learning (ML) and data mining, has emerged as a promising avenue for fraud detection within the financial sector. Both supervised and unsupervised ML algorithms have been employed to forecast fraudulent activities, with classification techniques proving particularly popular (Nguyen et al., 2019). Typically, these methods involve initial model training using labeled datasets, followed by the classification of test samples.

Several recent reviews have explored various facets of fraudulent financial activities (Zhang & Zhou, 2004). For example, Zhang and Zhou (2004) investigated ML methodologies pertinent to fraud detection across financial sectors, including stock market transactions. Additionally, comprehensive surveys have been conducted to examine data mining and ML techniques across diverse fraud domains, such as credit card, insurance, and telecom subscription frauds (Phua et al., 2016).

Recent years have witnessed a surge in fraudulent activities within the healthcare sector (Williams et al., 2021). Abdallah et al. (2016) conducted a review focusing on statistical approaches to uncovering healthcare fraud.

Moreover, previous reviews, such as the study by Albashrawi (2016), have examined fraud detection within financial sectors using data mining techniques but often lacked comprehensive evaluations

and assessments of the methodologies employed. Thus, there exists a conspicuous gap necessitating a holistic review encompassing the entire spectrum of financial fraud activities.

## 2.2. Unveiling the Dark Side of Insurance Fraud

The various forms of fraudulent activities, ranging from staged accidents to medical billing fraud, necessitate vigilant efforts from insurers, law enforcement agencies, and regulatory bodies to detect, prevent, and prosecute these illicit practices effectively.

This nefarious activity involves individuals or groups intentionally deceiving insurance companies to secure financial gains to which they are not entitled.

The reasons driving insurance fraud are complex, often stemming from financial desperation, greed, or a sense of entitlement.

The main practices are shown below:
- **Arson and Property Damage:** Insurance fraud can extend beyond claims for personal injuries to encompass schemes related to property. Arson is one of the most useful fraud insurance practices and is the case when individuals set fire by themselves, to their property or business to collect insurance money.
- **Staged Accidents:** Fraudsters may arrange vehicular collisions or intentionally cause accidents to file false claims for property damage or personal injuries.
- **Exaggerated Claims:** Policyholders overstate the value of damaged items for example injuries in an accident or claim damages that are fictitious.
- **Medical Billing Fraud:** This type of insurance fraud may involve making bills for services not provided, inflating the cost of procedures, or even charging for treatments that are not necessary.
- **Ghost Policies:** These ghost policies often involve fabricated information regarding insured assets or non-existent coverage plans.

## 3. LOSSES FROM INSURANCE FRAUD

## 3.1. Data on losses from insurance fraud in different countries

"It is hard to place an exact value on the money stolen through insurance fraud, Insurance fraud is deliberately undetectable, unlike visible crimes such as robbery or murder. As such, the number of cases of insurance fraud that are detected is much lower than the number of acts that are actually committed", (Manes, 1945).

Here are some data on losses from the fraudulent cases:
- The Insurance Fraud Bureau of the United Kingdom estimates that the loss due to insurance fraud there is about £1.5 billion ($3.08 billion) (Insurance Fraud Bureau of United Kingdom, 2023).
- The Insurance Bureau of Canada estimates that personal injury fraud in Canada costs about C$500 million annually (Insurance Bureau of Canada., 2023).
- The Coalition Against Insurance Fraud estimates that in 2006 a total of about $80 billion was lost in the United States due to insurance fraud (Insurance Information Institute, 2023).
- The National Health Care Anti-Fraud Association estimates that 3% of the healthcare industry's expenditures in the United States are due to fraudulent activities, amounting to a cost of

about $51 billion. Other estimates attribute as much as 10% of the total healthcare spending in the United States to fraud—about $115 billion annually (Rai, 2001).
- According to the FBI, non-health insurance fraud costs an estimated $40 billion per year, which increases the premiums for the average U.S. family between $400-$700 annually.
- Indiaforensic Center of Studies estimates that Insurance fraud in India costs about $6.25 billion annually (Indiaforensic Center of Studies, 2023).

### 3.2. Data on losses in insurance fraud in Albania

"Insurance trickery", is the new fraud scheme that has been flourishing in Albania in recent years. Mainly using legal spaces or recognition in insurance companies, various individuals mainly secure properties through forged documents. "In the insurance sector, the damage comes from other factors. This is related to the degree of responsibility of the insured individual not to abuse. Even here, it becomes difficult to prevent cases", says (Musta, 2023).

Meanwhile, what was the most widespread scheme until the end of 2021, "credit fraud" seems to be applied less often. Data from the General Prosecutor's Office show that 33 people out of 64 were prosecuted in 2021, marking a decrease of over 48 percent. According to Musta (2023), "Banks, like insurance companies, have significant losses from these frauds. They are carried out by groups of individuals, often collaborating with employees within the banks. Financial institutions are trying to set up sophisticated systems for filtering requests".

Insurance fraud remains a pervasive issue plaguing the insurance industry, resulting in billions of dollars in losses annually.

## 4.   INSURANCE FRAUD DETECTION AND PREVENTION

The fraud identification process is very complex and goes through two steps:
1) Identification of suspicious claims that can be fraudulent. This is realized by computerized statistical analysis or by insurance agents.
2) Referral these fraudulent claims to investigators for further analysis.

### 4.1.  Strategies and Technologies for Fraud Detection and Prevention in the Insurance Industry

Insurance fraud can bring higher premiums for policyholders and can lead to great financial losses for insurance companies. This section gives different strategies and technologies that can be used to combat and reduce insurance fraud.
- **Machine Learning (ML) and Artificial Intelligence (AI)**: As studies show, AI and ML have helped a lot to detect and prevent fraud in the insurance industry. These technologies can get and analyze data in real-time and enable insurers to more efficiently identify fraudulent claims. For example, AI algorithms can compare the historical data with the claim details, and identify similarities that may indicate fraudulent activity. Rout (2023) has shown the benefits of Insurance Fraud Detection by using AI.
- **Information and collaboration:** This collaboration of insurance companies with law enforcement agencies, other insurers and regulatory bodies, helps to share information about fraudsters or suspicious activities and create a database of fraudulent behaviors. Also, the collaboration allows quick identification and suspicious practices in the insurance industry.

- **Social Media Monitoring**: Social media platforms are used by insurers to monitor online activities to detect fraudulent practices. For example, a person claiming to be injured and unable to work but posting physically demanding activities on social media could manifest fraudulent behavior.
- **Special Investigation Units (SIU):** Trained professionals of these units employ various investigative techniques, such as background checks and surveillance, to collect evidence and compile situations against fraudsters.
- **Advanced Data Analysis:** Insurance companies by using advanced data analysis, can identify suspicious behaviors that may be potential fraud. So, an individual that frequently changes his address, is a suspicious practice and must be object for further investigation.
- **Predictive Modeling:** These techniques enable insurance companies to assess the probability of a claim being fraudulent. Predictive modeling is based on factors such as claims history, demographics and policy details.
- **Fraud Awareness and Education:** Insurance companies make efforts to raise awareness about the risks and consequences of fraudulent activities and the importance of reporting suspicious behaviors. They constantly invest in educating their employees, policyholders, and the general public about insurance fraud.



**Figure 1.** Benefits of insurance fraud detection by using AI

**Source:** Rout, 2023

By implementing these strategies and leveraging advanced technologies, the insurance industry aims to strengthen its defenses against fraud, thereby safeguarding its financial stability and reputation while ensuring fair premiums for policyholders.

## 4.2. Penalties for accomplishing insurance fraud

When individuals or companies engage in fraudulent activities to gain insurance benefits, they cause damages, not only in the insurance industry but also contribute to increasing premiums for honest policyholders. To prevent such dishonest behavior legal systems worldwide have established penalties for insurance fraud. These sanctions vary by jurisdiction and the severity of the offense but generally aim to hold perpetrators accountable and deter others from engaging in similar fraudulent activities.

Insurance fraud can lead to criminal charges that may result in potential imprisonment. In many countries, intentionally defrauding an insurance company is considered a criminal offense.

The penalties for committing insurance fraud are severe and multifaceted, reflecting the serious nature of the crime and its detrimental impact on the insurance industry and honest policyholders.

Effective enforcement of these penalties, coupled with robust fraud detection and prevention measures, is essential for deterring fraudulent activities, protecting consumers, and maintaining the integrity of the insurance system.

## 5. FUTURE RESEARCH DIRECTIONS

Insurance fraud as the studies and practice show is an important phenomenon that has a crucial impact in different fields of life. So, it is recommended to be a topic for further research studies. A continuous and wider collaboration of researchers and specialists in fields such as economics, law, insurance, the public sector, technology, as well as individuals, would enable finding different ways to identify, prevent and reduce fraudulent insurance practices.

## 6. CONCLUSION

- It is hard to place an exact value on the money stolen through insurance fraud. So, prevention should be the main focus of companies to minimize insurance fraud through risk management.
- The majority of insurance companies are planning to dedicate more resources to the fight against this scourge, designing and implementing insurance fraud reduction policies.
- To save time and financial resources insurance companies must avoid fraud since detecting it, because after it occurs the consequence is that the stolen assets are irrecoverable.
- This systematic literature review (SLR) aims to provide insights into existing ML-based methods for financial transaction fraud detection, guiding researchers in selecting appropriate ML techniques and datasets for predicting fraudulent activities in financial transactions.
- Insurance fraud is a problem that affects all insurance services, insurance companies and individuals. As a result, everyone must be careful in verifying every possible claim. If it is not possible to do this manually, it can be easier through Artificial Intelligence (AI).
- Machine intelligence streamlines claims processing by automating data entry, fraud detection, and decision-making, leading to faster and more accurate assessments.
- Additionally, it enables insurers to leverage predictive analytics for risk assessment, optimizing resource allocation and enhancing overall efficiency.

## 7. RECOMMENDATIONS

- Organizations should focus on understanding people's behavior and identifying the causes that lead them to commit fraud. After that, the organizations can prevent insurance fraud.
- Creation and implementation of a specific law on insurance fraud, which defines responsibilities, procedures, sanctions and mechanisms of inter-institutional cooperation.
- The establishment and operation of an independent agency or authority for the investigation and prevention of insurance fraud, which has the technical, professional and legal capacities to perform its duties.

- The various forms of fraudulent activities, ranging from staged accidents to medical billing fraud, necessitate vigilant efforts from insurers, law enforcement agencies, and regulatory bodies to detect, prevent, and prosecute these illicit practices effectively.
- Improving the insurance information and data system, which allows the exchange of accurate, reliable and secure data between insurance companies, regulatory authorities and investigative agencies.
- Changes in financial reporting standards that increase the transparency and quality of insurance information.
- Changes in reinsurance standards, increase the protection of insurance companies from high and unforeseen risks.
- Changes in insurance brokerage standards, increase the professionalism and ethics of insurance brokers.
- Changes in insurance supervision standards that increase the efficiency and effectiveness of regulatory authorities.
- Increasing awareness and education of the public, insurance personnel and other related actors about the risks and consequences of insurance fraud, as well as about the ways of reporting and denunciation of suspected cases.
- Expanding and deepening international and regional cooperation to fight insurance fraud, including the exchange of experiences, information, expertise and resources.
- Insurance fraud represents a complex and multifaceted challenge that undermines the integrity of the insurance industry. By understanding the various forms of fraud and the factors contributing to its prevalence, both insurance companies and policyholders can work together to combat this illicit activity, fostering a more transparent and trustworthy insurance environment for all stakeholders.

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# Challenges Faced by the Albanian Automotive and Auto-Insurance Industries Amidst Blockchain and Artificial Intelligence Disruption

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**Abstract:** *This paper aims to explore the automotive and auto insurance industries in Albania, pointing out the presence of such challenges as system interoperability, vehicle repair traceability, and risk analysis in insurance claim processing. Identifying the fragmented characteristics of these sectors is made possible through research techniques, including interviews with stakeholders and analysis of available open data. It also examines how various systems used by stakeholders are disconnected, vehicles' service history associated with VINs being rare, and risks from odometer fraud and rolling wrecks (re-entering damaged cars into the market). This paper further explores the auto insurance landscape by highlighting the non-existence of a bonus-malus system despite legal provisions, lack of data operability among insurers, and traditional labor-intensive claims settlement methods that intensify fraud risks. The paper discusses how blockchain and AI technologies can address these issues, drawing insights from previous research on their application in this sector.*

## 1. INTRODUCTION

Albania's automotive and auto Insurance industry landscape has two major regulatory institutions. The General Directorate of Road Transport Services (DPSHTRR) is responsible for the automotive industry, and the Albanian Financial Supervisory Authority (AFSA) is responsible for the insurance industry. In Albania, the automotive industry comprises stakeholders such as government institutions, regulatory bodies, dealerships, and repair services: around 15 new vehicle dealership companies, a few primary repair services, and around 3500 small ones. The automotive industry in Albania, based on Open Data DPSHTRR (2024), operates with imported vehicles mainly for European producers, in fewer numbers from the USA, and currently in growing numbers from Asian producers. Based on the license registration in the insurance market by AFSA (2024), 12 insurance companies operate in Albania and one reinsurance company. To this date, around 25 motor vehicle claim adjusters licensed by AFSA (2024) evaluate vehicle crashes and claims.

DPSHTRR, established in 1999, is a self-financing institution in Albania with entirely state capital. DPSHTRR provides road transport services through 13 regional directorates and sub-offices. It is accountable for vehicle services such as vehicle registration, equipping the vehicle with license plates and traffic permits, vehicle ownership, mandatory technical control of the vehicle, and driving licenses for vehicle drivers. DPSHTRR has a national register of vehicles and their drivers and an open-data platform for statistics. Based on the data provided by the Open Data DPSHTRR (2024) platform up to December 2023 in Albania, there are 1,065,724 active driver licenses, where

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71.9% are males and 28.1% are females. The age groups that dominate the active driver licenses are 25-34 years with 30.7%, followed by 35-44 years with 23.98%. Of all driver licenses, 72.9% are class B driver licenses. Based on the insights presented in Table 1 for the data from 2020 to 2023, there has been an average increase over the years of 63,450 or a 5% trend for registered driver licenses. There are 867,765 active vehicles, an 8% average increase over the years. Up to December 2023, in Albania, there are 11,225 green vehicles of the latest generation, produced in the last 0-3 years, and 3,321 all-electric vehicles. Based on Open Data DPSHTRR (2024) on technical control of the vehicle only in 2023, 234,995 vehicles were tested, and 87,700 vehicles did not pass the test the first time. After the repairs, 83,315 vehicles were retested; 263 were rejected/stuck due to odometer problems. In 2023, vehicles failed the technical control test for problems, with 45.1% for visual defects, 30.2% for exhaust systems, 12.3% for steering system suspension, and 12.4% for braking systems. The reasons for the refusal of technical control of the vehicles include damaged windows, worn tires, defects and deficiencies in the system, deficiencies in documentation, and problems with the operation of the odometer. Since August 2022, DPSHTRR has started to check issues with the odometer operation, but DPSHTRR has not specified whether the inspectors do an odometer fraud check. Based on the latest data, the DPSHTRR inspector in the technical control of the vehicle does not check for odometer mileage fraud.

**Table 1.** Insights on vehicles and driver license trends in Albania

| Metrics\Years | 2020 | 2021 | 2022 | 2023 | Yearly Average Increase | Yearly Average Increase (%) |
|---|---|---|---|---|---|---|
| **Registered Driver licenses** | 1,049,657 | 1,116,585 | 1,173,065 | 1,240,006 | 63,450 | 5% |
| **Active Vehicles** | 676,811 | 740,669 | 796,438 | 867,765 | 63,651 | 8% |
| **First-time Vehicle Registered** | 52,361 | 68,514 | 59,910 | 78,157 | 8,599 | 11% |
| **First-time All-Electric Vehicle Registered** | 317 | 370 | 675 | 1,813 | 499 | 41% |

**Source:** Own processing

The data from Open Data DPSHTRR (2024) provides insight into the diversity of vehicle types and numbers. However, a significant gap exists in leveraging this data to enhance operational efficiency and transparency. Despite its growth, the automotive industry is marred by a lack of system interoperability among these stakeholders. This leads to challenges in tracking vehicle repair history and service records, as most service records are maintained in isolation without linkage to a vehicle's unique identification number (VIN). This isolation not only hinders the traceability of services but also exacerbates the potential for odometer fraud and putting "rolling wrecks," vehicles marked for removal from inspectors, again into the market, posing considerable economic risks.

The insurance industry in Albania is regulated and supervised by the AFSA, established in 2006, an independent institution accountable to the Albanian Parliament, overseeing the non-banking financial sector, including the insurance industry. AFSA's mandate encompasses insurance, securities, voluntary private pensions, and other economic activities to ensure market stability, transparency, and consumer protection. It operates with a dual focus on regulatory and supervisory functions, fostering a reliable market environment, enhancing consumer and investor protection, and promoting the sound development of financial markets. AFSA's activities include licensing, standard setting, market supervision, and enforcing compliance, emphasizing shifting towards risk-based supervision models and establishing consumer compensation schemes for enhanced market integrity and stability.

The insurance of vehicles in Albania is mandatory by the Republic of Albania Law No. 32/2021 on compulsory insurance in the transport sector (2021), which aims to regulate the insurance

sector, ensuring protection and financial stability for affected parties in case of accidents and aligning with European directives on motor vehicle liability insurance. It outlines the obligations for mandatory insurance coverage in various transportation modes, including motor vehicles, public transport passengers, and marine vessels. This law in article number 8 defines a bonus-malus system application for motor vehicle insurance as a risk-analyzing factor for adjusting insurance premium levels based on the insured's claims history. The law describes the bonus-malus system as a critical risk factor that allows insurance companies to tailor the pricing of liability insurance for damages caused to third parties by the vehicle's use but leaves the application of this system in the hands of the insurance companies by not making it mandatory. Insurers must issue a claims history certificate to insured individuals, following specific formats and guidelines and ensuring transparency and fairness in premium determination. Stating that this approach aims to dynamically adjust premiums following the claims history of the insured, excluding border policies and the green card system, the law provides a structured approach to adjusting premiums but still leaves room for interpretation in terms of how insurance companies implement the system, the specific criteria used to classify drivers into different bonus-malus levels, and how significantly a claim affects the premium. To this date, none of the twelve insurance companies that operate in Albania use the bonus-malus system in motor vehicle insurance. Despite the legal approval of a bonus-malus system, its implementation remains elusive, further complicating the pricing strategies and risk management efforts.

Blockchain and artificial intelligence (AI) digital transformation technologies present opportunities to address these longstanding inefficiencies and challenges within the automotive and auto insurance industries. These sectors in Albania are characterized by fragmentation, lack of interoperability, and vulnerabilities to fraud, which impede operational efficiency and pose significant economic risks. This paper, raising several research questions defined in the methodology, explores the current landscape of these industries in Albania, their inherent challenges, and the potential for blockchain and AI technologies to lead to the innovation of a more transparent and efficient new era. For the research presented in this paper, the authors conducted interviews with stakeholders across the industries to gather insights. The following paper is organized in the literature review, delivering the latest advancements for blockchain and AI in automotive and auto insurance. Following methodology, the authors explain the methods and the data source. The following sections present the analysis and discussion, as well as the future research direction section. Finalizing with the conclusion section and references to conclude the paper.

## 2. LITERATURE REVIEW

Notably, blockchain and AI innovations have gained tremendous recognition for their ability to tackle the problems faced by the automotive and insurance sectors. In their paper, Zeneli and Barolli (2023) analyze the application of blockchain technology as a platform applicable to businesses and different industries. The insurance and automotive industries already use platforms like Hyperledger Fabric, Hyperledger Sawtooth, ConsenSys Qurorum, and R3 Corda. By analyzing developments in the blockchain field for business technologies, this paper argues that with intricate problems, there is an increase in performance for security purposes, efficiency enhancement, and transparency, among others. To these authors, there is an evident shift towards all-encompassing solutions whereby blockchain forms the backbone of any proposed framework. From a performance standpoint, adjusting parameters can make them more suited to specific business situations. Their analysis argues that blockchain technology offers scalability, adaptability, and compatibility for businesses from various industries to gain competitive

advantages through its use. Suhaib Kamran et al. (2022) discuss AI's wide range of applications, including improving vehicle designs, production effectiveness, and automating assembly lines. Supply chain management is under the supervision of AI when detecting faults with a product in defect detection and identifying marketing strategies in personalized marketing and sales strategies. AI is also involved in improving the safety situation on the road by analyzing road conditions, predicting drivers' emotions, and recognizing risks so that accident cases can be minimized. This investigation further spotlights machine learning (ML) and deep learning (DL) to improve product quality by ensuring thorough examinations beyond sample verification. Eling et al. (2021) examine the application of AI in the insurance field, including AI uses in risk analysis, claim handling, customer service engagement, fraud detection, and individualized insurance policy pricing. The authors research how AI-driven technologies such as ML, natural language processing (NLP), and predictive analytics can enhance operational efficiency, customer experiences, and risk management mechanisms throughout the insurance sector.

The inaccessibility or unreliability of vehicle lifecycle details has led to cases of odometer and accident fraud, affecting stakeholders' trust in such vehicles. In this regard, Barolli and Zeneli (2022) propose a permissioned blockchain solution on Hyperledger Fabric to digitize and manage automotive data safely. This platform will ensure an open collaboration involving manufacturers and insurance companies within the automotive ecosystem by introducing smart contracts like pay-as-you-drive models. As such, it provides no tampering with odometers, creating a more reliable, efficient, and safe car environment. Alladi et al. (2019) discuss how blockchain and IoT are integrated into Industry 4.0 to enhance data security, reduce fraud, and increase supply chain visibility for logistic purposes. They emphasize the use of blockchain in securing car communications, enabling tracking history for resale value verification purposes, including reselling automobiles. As stated in IoT, it accelerates real-time vehicle data acquisition, reducing supply chains while enhancing manufacturing and customizing consumer experience. Banik et al. (2023) have chosen the Hyperledger Fabric blockchain framework for protecting privacy, confidentiality, and integrity through control of the processing of vehicular information in some cases. This system empowers authorities to monitor automobiles across state boundaries, tackling critical issues like fake registration documents and data manipulation. Assessments of its performance have confirmed its feasibility and effectiveness. Zafar et al. (2022) designed a distributed structure under the Hyperledger Fabric, entailing how security can be enhanced with efficiency in automotive supply chain management. The architecture is based on permissioned blockchain technology, which addresses vulnerabilities in centralized databases, ensuring data integrity and secure access. Their findings show efficiency in managing vehicle information with minimal memory occupation, monetary expenses, and real-time updates. The system highlights the importance of blockchain towards transparency, control, and scaling in the automobile industry. Syed et al. (2020) developed a blockchain-based framework for vehicle lifecycle management. This framework addresses trust management, transparency, and access control issues in various automobile transactions, such as manufacturing, buying, selling, insurance, and regular inspection. This proposed system is based on a permissioned blockchain model using Hyperledger Fabric that combines usage control and IoT devices to track vehicles continuously and can deny access remotely whenever needed. All transactions are recorded by this system on an unalterable ledger, ensuring that data integrity is always upheld, thus restoring confidence among participants. As an example, it demonstrates how it has been implemented in a prototype form, showing that the approach was viable based on its performance analysis results. It indicates its suitability for adoption and efficiency, making it scalable and a secure solution to vehicle information management problems.

Mateen et al. (2023) consider the challenges the auto insurance industry faces, shedding light on how blockchain technology and cloud computing can help secure data and stop fraud. This research criticizes present strategies of combating fraud as antiquated and focuses on blockchain's contribution to data integrity and cloud computing's effectiveness in data management. The security threats, as well as privacy, access control measures, or policies that should be put in place for this purpose of storage, are described. In their article, Xiao et al. (2019) investigated a data identity authentication framework based on Hyperledger Fabric customized for the insurance industry to improve security and practical application among participants. This study showed positive results regarding this program's efficacy. A platform based on blockchain designed by Lin et al. (2020), is proposed for usage-based motor vehicle insurance in the environment of the Internet of Vehicles (IoV), with traditional insurance metrics improved with driving data leading to more accurate premium calculation and additional services such as automated claims, better traffic adjudication, and predictive maintenance. It discusses how this cutting-edge approach could improve existing insurance models through technicalities required for setting up such a blockchain network, including technical issues like management and privacy. A platform for usage-based insurance (UBI) presented by F. Y. Lin et al. (2021) based on blockchain and IoV focuses on the operational model of the involved stakeholders. The authors discuss the support of UBI based on drivers' behavior in calculating insurance prices and propose a blockchain-based approach with a bidding mechanism to improve UBI management and increase consumer trust.

Saideeep (2023) explores how AI transforms the automotive industry, particularly manufacturing, and design. It investigates AI's contributions to autonomous vehicles, supply chain management, predictive maintenance, quality control, and workforce dynamics. The study also touches on designing sustainable automotive systems with AI and considers ethical issues such as job displacement and data privacy. The findings highlight AI's role in improving vehicle safety, manufacturing quality, and efficiency while pointing out the challenges of integrating AI, including ethical concerns and the need for substantial investment in research and development. Li et al. (2018) provide an in-depth analysis of the application and impact of AI and ML in the automotive sector. The study outlines key technologies in autonomous vehicles (AVs) and connected vehicles (CVs), highlighting advancements in sensing, decision-making, control, and communication. It emphasizes AI's role in enhancing vehicle perception, cognition, and environmental interaction for improved safety and efficiency. Challenges such as data privacy, security, and integration with existing systems are addressed. Selim and Gad-El-Rab (2024) analyze AI's influence on the automotive sector, especially AVs, covering LiDAR technology and its implications for navigation, insurance, urban planning, and consumer preferences. They forecast an AV industry evolution driven by AI, pooled insurance, smart cities, and a tilt towards semi-autonomous vehicles, highlighting the intricate mix of technological and societal factors shaping the future of automotive AI integration.

Considering the integration of AI and blockchain, Kapadiya et al. (2022) examine the role of AI and blockchain in combating fraud within the health insurance sector. The study shows that AI can analyze an enormous volume of data, thereby increasing the safety and performance of insurance practices. The authors advocate using blockchain to ensure the system's integrity and curb fraud. This solution offers, in turn, an ideal response to such rampant malpractices in the industry. This initiative also focuses on how efficient AI applications can help identify fraud in the insurance industry, thus paving the way for future developments in secure and intelligent insurance services. One of the efforts on the use of blockchain and ML in the insurance system was developed by Dhieb et al. (2020). They established a blockchain framework with an

XGBoost ML algorithm-based insurance system that helps automate the process, improve security levels, identify risky customers, and reduce fraud and financial losses. The results indicate the effectiveness of using XGBoost to determine fraudulent claims in an auto insurance dataset. Saddi et al. (2023) apply AI/ML approaches such as supervised learning, DL, and NLP to enhance insurers' capacity to detect fraud. Having emphasized that hybrid AI/ML systems successfully recognize and stop sophisticated fraud, the report suggests that utilizing different AI/ML tactics can enhance insurers' anti-fraud readiness and coverage accuracy.

## 3.  METHODOLOGY

In this paper, challenges are investigated by the authors going through preliminary research and analysis of the current literature and documents that already exist, including reports, official data of Albania, studies, national strategic documents, and policies to understand the current landscape, as well as scientific articles and publications. This research adopts a qualitative approach through an analysis of secondary data gained from reviewing the literature combined with an analysis of primary data from stakeholder interviews and exploratory reviews of industry practices. Semi-structured interviews were conducted to allow the authors to gather detailed information on the topic while still allowing the observation of patterns between participants. The predetermined questions and the open discussions during the interviews were focused on auto insurance companies' systems and processes. The purpose is to gather insights into the operational inefficiencies, technological gaps, and current issues in Albanian's automotive and auto insurance landscape.

In the first stage, the authors searched notable databases such as the Web of Science, IEEE Xplore, ScienceDirect, SpringerLink, Scopus, Google Scholar, etc., to find literature on the implementation aspects of blockchain and AI technologies in the automotive and auto insurance industry. Then, the authors accessed the open data available by organizations and institutions in Albania, such as the platform Open Data DPSHTRR, the register of licenses in the insurance market by AFSA, and Republic of Albania Law No. 32/2021 on compulsory insurance in the transport sector. Without any claim to completeness, via the secondary data analysis from the first stage, the authors developed the following research questions (RQ) to identify specific challenges within the Albanian automotive and auto insurance sectors and explore the potential of blockchain and AI as solutions.

**RQ1.**    What are the current concerns about the Albanian automotive and auto insurance scenario?

**RQ2.**    Would it be beneficial for Albania's automotive and auto insurance industries to incorporate AI and blockchain technologies?

**RQ3.**    Can all stakeholders agree? What limitations do they face in putting all stakeholders in agreement on a unified decentralized platform?

Based on our RQ, interviews with representatives of the 12 insurance companies in Albania licensed by ASFA were conducted in the second stage. The primary data collected from this stage were analyzed to answer the research questions. They served for deep analysis of the current technological environment in Albanian automotive and auto-insurance industries, shedding light on potential applications of disruptive technologies such as blockchain and AI in this sector.

## 4. ANALYSIS AND DISCUSSIONS

Based on the data gathered from the DPSHTRR, automotive repair services, and dealership processes and systems, the Albanian automotive landscape needs to be more connected by stakeholders such as dealerships, vehicle repair services, and the institution DPSHTRR responsible for vehicle registration, licensing, and taxation. The nature of this industry is fragmented because the data for vehicles are not shared between stakeholders, the processes are not well defined, and there is a high risk for vehicle fraud with odometer and rolling wrecks. The systems are disparate, and their scope is limited to the system's owner. The stakeholders are skeptical and do not provide data sharing because there is a lack of system infrastructure and a lack of motivation. Data on the vehicle services are written in a paper-based logbook and are not updated in some use cases involving small vehicle repair services. Most vehicle repair services and dealerships that store data for their services use their disparate systems for internal purposes.

Based on the data gathered from the interviews with auto insurance companies and the analysis of their systems and processes, the Albanian auto insurance industry needs more data interoperability among stakeholders. The 12 auto insurance companies in Albanian are using disparate platforms and systems that do not support or require extra effort to develop the application of a bonus-malus insurance policy price. As for the data, these companies store and analyze data for Casualty and Collision (CASCO) and Mini-CASCO insurance policies but not for the obligatory motor vehicle Third Party Liability (TPL) insurance policy. These stored data are not shared between stakeholders. As for the data analysis for CASCO and Mini-CASCO, that analysis is done only to determine if to block or not a specified insurer based on the data and claims of the last years. This analysis does not affect the price of these insurance policies. A bonus-malus or pay-as-you-drive insurance policy price is not applied even though the company determines the prices of CASCO and Mini-CASCO insurance policies and not by the AFSA institution, such as in the case of the TPL insurance policy.

There is a need to develop a platform based on disrupting Insurance 4.0 processes and technologies to make all stakeholders collaborate and enhance Albania's automotive and auto insurance industries. The proposed platform is based on integrating blockchain technology due to the immutability of the data stored on the distributed ledger and AI in the claim processing and analysis of the data stored and shared by all stakeholders in the blockchain. This platform will raise new opportunities and should be backed by government institutions such as DPSHTRR and ASFA. Considering the small number of significant stakeholders in the Albanian landscape, this platform could be achieved if the government negotiates and governs the collaboration of stakeholders. There are limitations to be considered, such as technological compatibility and the complex scenario of integrating different stakeholder systems in a unified blockchain platform. Investment cost as an initial investment is substantial and needs the involvement of major stakeholders and the government to finance the initial investment. There is a need for Albanian regulatory and legal issues of blockchain and AI in automotive and auto insurance implementation scenarios.

The authors propose a phased approach for implementing blockchain and AI solutions, starting with pilot projects to assess feasibility, gather stakeholder consensus, and evaluate the impact on industry standards and practices. The economic impact of such a platform in the long term will benefit government institutions in terms of taxation policies and auto insurance

companies in terms of lowering the risk of fraud and better managing claim processing. From the point of view of the owner of the vehicle, such a platform could leverage new business models such as bonus-malus and offer a better insurance policy price, offer information on the vehicle's history, and prevent buyers from odometer and rolling wrecks fraud.

## 5. FUTURE RESEARCH DIRECTIONS

The future of the automotive and auto insurance sectors is highly technological and characterized by AI, blockchain, and IoT. The purpose is to enhance vehicle safety, make manufacturing processes more efficient, and create innovative and personalized insurance covers. Because of AI's predictive functionality, vehicle maintenance and driving assistance functions will never be the same again. At the same time, blockchain creates a new dimension of openness and trust across the supply chain regarding transactions and data sharing. With IoT integration, insurers can have cars that are more connected with real-time information, which can help them evaluate risks accurately and provide customized products that match these risks. Therefore, these technologies will streamline operations, making them less prone to fraud and leading to higher client satisfaction levels; this is how both industries will look in the future. The authors underline the necessity of a future research direction based on the application of these technologies in these industries.

## 6. CONCLUSION

The authors examined the available open data about the Albanian automotive industry and auto insurance sector and arranged meetings with some of the main stakeholders in these sectors. The paper concludes that although there has been an increase in the automotive and auto insurance sectors in Albania, there is limited system interoperability and a lack of collaboration between stakeholders in these industries. The automotive landscape lacks transparent data and digital and secure data for vehicle lifecycle, posing threats of rolling wrecks, vehicle odometer fraud, accident fraud, and a lack of traceability of vehicle repair services. The auto insurance landscape has a lack of interoperability of systems between stakeholders, a lack of risk analysis based on the data available from insurers, a lack of application of a bonus-malus system or pay-as-you-drive insurance policy prices, and a lack of digitalization of processes for an insurance claim that rises the risk for crash-for-cash accidents, false claims, and inefficient risk analysis. Insurers and the insured do not benefit from the current schema as TPL insurance price policies are not subject to an incentive schema despite the legal provisions of a bonus-malus price for insurance policy applications. As for the CASCO and Mini-CASCO insurance policies, data analysis is fragmented only to determine within an insurance company if it should continue with a client or not. This data of insurer claims and decisions are not shared between stakeholders, raising the risk of a bad client continuing to get service from another insurance company. Advancements in disruptive technologies, such as blockchain and AI in the automotive and insurance industries, could also be applied to the Albanian landscape. AI combined with blockchain means data integrity, better computer interface, and high-level analytics for risk control and prevention of fraud. The decentralized ledger technology found in blockchain can help combat data tampering and fraud by providing an open, immutable record of vehicle histories, repairs, and transactions, among other things. Insurance risk assessments can be optimized using predictive analytics and AI's machine learning algorithms, making claims processing faster while enhancing clients' experience through personalized pricing strategies.

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# The Role of Financial Institutions in Promoting Energy Efficiency Projects

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**Abstract:** *This research highlights the way financial institutions, like as banks and investment funds, play a crucial role in promoting and developing energy efficiency projects. By providing capital and expertise, these entities facilitate the implementation of initiatives aimed at reducing energy consumption, using renewable sources, and improving energy efficiency. The funded projects cover a wide range of objectives, from reducing dependence on fossil fuels to improving air quality and increasing industrial competitiveness. By supporting these initiatives, financial institutions aim to create sustainable energy infrastructures, stimulate job creation, and facilitate an efficient transition to clean energy sources. The research results highlight the fact that financial institutions play a crucial role in the development of energy efficiency, and by fulfilling the directives established by the European Union, an upward trend can be created in the following projects.*

## 1. INTRODUCTION

The process of globalization generates economic growth and fosters the integration of economies through international trade, investment opportunities, capital flows, and global cultural interactions. Additionally, it facilitates collaboration among countries to accelerate innovation by identifying common issues and priorities and sharing best practices, thereby addressing innovation gaps and enabling the adoption of clean energy technologies (Shahbaz et al., 2018).

Globalization also contributes to institutional reforms that lead to financial development and economic growth. It is evident that financial development supports the efficient use of countries' limited resources, promotes investments, and stimulates economic growth (Li & Ramanathan, 2020; Mishkin, 2009).

This paper, based on previous research, argues that green financing represents an efficient way to allocate financial resources and redirect capital flows towards industries characterized by low energy consumption, low pollution, and high efficiency (Ng, 2018).

This is achieved through specific financial instruments like as green credit, green bonds, green insurance, green investments, and carbon financing, aimed at promoting the optimization of economic structures and achieving a favorable balance between the environment and the economy (Zeng et al., 2014; Tolliver et al., 2020).

Regarding "investments in renewable energy," there are two distinct definitions. The first refers to the investments made by enterprises in renewable energy, i.e., the amount allocated by them in a year

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for renewable energy projects (He et al., 2018). The second definition refers to investments made by enterprises operating in the renewable energy sector, consisting of the amount of money used for the construction of fixed assets, intangible assets, and other long-term assets (Zhang et al., 2016).

The paper is structured into four parts. The first part contains the literature review section, which highlights elements related to previous research on financial instruments in energy efficiency projects. The second part contains the section on Objectives regarding the use of renewable energy sources by 2028, presenting the objectives set by the European Union regarding the prospects of renewable energy sources. The third part outlines the research objectives, and the final part of the paper presents the conclusions.

Thus, this paper defines "investment efficiency in renewable energy" as the investment efficiency of renewable energy enterprises from the perspective of microeconomic agencies.

## 2. LITERATURE REVIEW

The unprecedented challenges posed by high dependence on energy imports and limited energy resources, the need to limit climate change and overcome the economic crisis, as well as the goal of transitioning to a more energy-efficient economy, should accelerate the diffusion of innovative technological solutions and enhance the competitiveness of the industry (Stiger, 2021).

Renewable energy is energy derived from sources that regenerate themselves in a short time, practically being inexhaustible. Such sources include wind energy, solar energy, water energy (hydropower, flowing water, tidal energy, tidal flow/reverse flow of seas and oceans), osmotic potential energy, geothermal energy (energy gained from the heat from the depth of the earth), and biomass energy: biodiesel, bioethanol, biogas (Magdîl & Crucerescu, 2015).

Global interconnectedness and the visible degradation of the environment create the current context of "mutual vulnerability," which induces the urgent need to align with international environmental protection standards by reviewing the means used in technology and industry, as well as increasing citizens' awareness of the importance of addressing environmental issues (Turcu et al., 2015).

All countries must respond to global environmental challenges and align with competitiveness standards generated by optimizing energy efficiency to ensure sustainable socio-economic and ecological development, which can be achieved through the implementation of eco-innovations.

The Paris Agreement on climate change has reiterated its importance, highlighting energy efficiency as one of the most cost-effective ways to support the transition to a low-carbon economy. Investments in this area are essential for translating the European Union's climate change objectives into concrete actions and bring numerous benefits to citizens and companies, including environmental protection, health, energy security, lower energy bills, more jobs, and sustainable growth.

According to a report of the Intergovernmental Panel on Climate Change (IPCC, 1996a) second assessment report, in which the stabilization of greenhouse gas emissions is expected by 2050, it is highlighted that the proportion of renewable energy in total global energy must increase tenfold compared to current levels.

In this regard, energy policy must create a conducive environment for investment, stimulate demand for energy efficiency, and facilitate consumer access to energy efficiency investments.

## 3. OBJECTIVES REGARDING THE USE OF RENEWABLE ENERGY SOURCES BY 2028

According to data provided by the International Energy Agency (IEA), by 2025, the global energy mix will be transformed. Thus, to continuously improve the analysis service in the energy field, a synthesis of data on renewable energy objectives has been carried out.
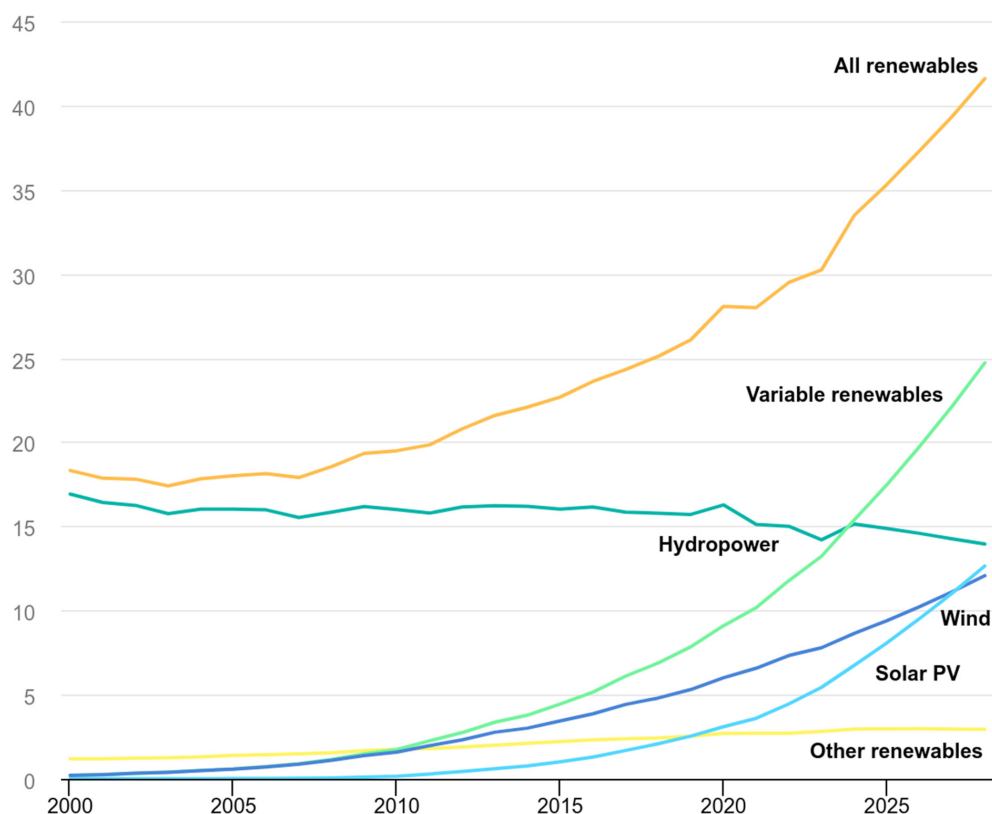


**Figure 1.** Share of renewable electricity generation by technology, 2000-2025
**Source:** IEA, 2024

According to IEA, it is anticipated that by 2025 the consumption of renewable energy sources will register an increasing trend, with the most used sources being wind and solar PV. In the upcoming period, the global energy market is in continuous evolution, with prospects of adding increased renewable energy capacity in the next five years.

According to the International Energy Agency (IEA), it is estimated that approximately 3,700 GW of renewable capacity will be connected to energy grids in the 2024-2028 timeframe, this growth being driven by supportive policies implemented in over 130 countries.

During this period, several significant milestones in renewable energy are anticipated:
- In 2024, wind and solar energy will collectively generate more electricity than hydro energy;
- By 2025, renewable sources will surpass coal in electricity production, becoming the main source of electricity generation;
- Electricity generation from wind and solar sources will surpass nuclear production in 2025 and 2026, respectively;
- By 2028, renewable energy sources will represent over 42% of the total global electricity production, and the share of wind and solar energy will double, reaching 25% (IEA, 2024).

The data suggests that, within the current energy policies and market conditions, it is forecasted that the global renewable energy capacity will reach approximately 7,300 GW by 2028. However, countries have the potential to exceed this figure and reach over 11,000 GW by 2030, by addressing existing challenges and implementing renewable energy policies more rapidly.

These challenges can be categorized into four main categories and vary from one country to another:
- Political uncertainties and delayed responses to new macroeconomic conditions;
- Insufficient investments in grid infrastructure, slowing down the rapid expansion of renewable sources;
- Administrative barriers and authorization procedures, as well as issues related to social acceptance;
- Lack of adequate funding for renewable energy projects in emerging and developing economies (IEA, 2023).

A pragmatic approach to these challenges could lead to an almost 21% higher increase in the utilization of renewable sources, thus encouraging progress towards meeting the global commitment to triple renewable energy consumption.

## 3.1. Expansion of Energy Efficiency Financing

The forms of financing for renewable energy projects are defined in accordance with Regulation (EU) 2018/1999. According to this regulation, actions within the mechanism can be financed through payments made by Member States, from funds of the European Union, or from contributions from the private sector.

This implies that financing can come either from the national budgets of the Member States, the budgets of the European Union, or from investments from the private sector. The private sector can financially contribute to the development of renewable energy infrastructure, either as individuals or as legal entities.

Before making their contribution, private entities can express preferences regarding the call for proposals or the technologies and final uses they wish to support. Private entities must make their contribution within three months of receiving the final information regarding the call for proposals. Therefore, these provisions provide a clear framework for the involvement of various entities in financing renewable energy projects, ensuring that funds are allocated and used efficiently and transparently (European Commission, 2021).

Energy efficiency is increasingly recognized today as essential for economic competitiveness and environmental management globally. There are significant opportunities for energy efficiency that are not yet exploited and require financing. In this framework, financial institutions, especially commercial banks, play a crucial role in expanding financing for energy efficiency projects and promoting low-carbon growth.

Financing energy efficiency projects is essential for developing, emerging, and developed countries, significantly contributing to mitigating climate change while promoting sustainable development, local job creation, and strengthening the resilience and efficiency of energy systems.

Over the past decade, the European Bank for Reconstruction and Development (EBRD) has actively supported local banks in developing their financing activities for energy efficiency projects.

Its main goal is to promote the transition to competitive, democratic, and sustainable market economies. Through financing and consultancy, the EBRD supports projects that promote economic reforms, improve infrastructure, and stimulate the private sector in its member countries.

In 2015, the EBRD and UNEP FI Energy Efficiency Financing Forum met in Istanbul, where over 60 local financial institutions gathered to create an alliance to increase the individual banks' contributions to energy savings and energy efficiency improvements (EBRD, 2015).

The Alliance of Energy Efficiency Financing Institutions expressed its firm commitment to promoting energy efficiency. In their 2015 declaration, financial institutions acknowledged their unique role in directing financing toward projects that encourage energy savings and efficient energy use.

They also emphasized the immense untapped potential of energy efficiency in financial markets. Through the declaration, these institutions expressed their willingness to actively collaborate to expand financing for energy efficiency while ensuring that financing principles are applied responsibly. They also expressed their readiness to guide their clients towards best practices regarding energy efficiency investments and to collaborate with institutional and public funders for the implementation of climate finance.

This declaration reflects the financial sector's commitment to promoting energy sustainability and a greener future.

Among all the institutions participating in the forum organized by the EBRD, the representative financial entities of Romania include: "Unicredit Tiriac Banka S.A.", "OTP Bank Romania S.A.", and "Casa de Economii si Consemnatiuni S.A.".

The Unicredit Tiriac Bank S.A. declaration confirms support for the Energy Efficiency Intention Declaration, in line with the UniCredit Group's environmental strategy.

The bank commits to providing financing for investments in energy efficiency and renewable energy. CEC Bank extends its lending for such investments, contributing to energy savings and environmental improvement in Romania (EBRD, 2015).

Through their commitment to renewable energy projects, financial institutions not only contribute to expanding infrastructure for clean energy sources but also promote innovation and the market introduction of sustainable technologies. By investing in renewable energy projects, these institutions support the reduction of greenhouse gas emissions and the protection of the environment, positively impacting air quality and public health.

Additionally, their involvement can contribute to job creation and stimulate economic growth in sectors related to renewable energy, playing an essential role in transforming and modernizing energy infrastructure towards more sustainable and ecological models, thereby paving the way for a greener and more sustainable energy future.

According to the study conducted by Rasoulinezhad and Taghizadeh-Hesary (2022), green bonds represent an efficient way to incentivize energy efficiency projects and reduce CO2 emissions. Therefore, in order to promote sustainable economic growth and address environmental issues, governments should implement long-term supportive policies that encourage private sector involvement in investments in green energy projects.

## 4.  RESULTS AND DISCUSSIONS

Financial institutions play an essential role in stimulating the development of energy efficiency projects by providing capital, expertise, and specialized financial services.

Through financing, these institutions provide the necessary resources for implementing technologies and solutions that lead to reducing energy consumption and improving energy efficiency in various sectors, like as industry, construction, transportation, and public services.

Over the long term, the following elements are pursued in terms of the success of energy efficiency projects, supported and developed through financial institutions:
1.  100% Clean Energy:The long-term vision includes a transition to 100% clean energy, primarily from solar and wind sources;
2.  Smart Grid Infrastructure: Developing extensive smart grid networks will enable efficient monitoring and management of energy consumption;
3.  Circular Economy for Renewable Sources: A circular economy approach will be adopted for renewable energy, where components and materials used in energy projects will be recycled and reused, leading to waste reduction and resource efficiency;
4.  Regulatory Standards: Comprehensive regulations and standards will create a more predictable environment for investments.

These developments are part of a broader global trend towards sustainability, environmental responsibility, and the transition to cleaner and more efficient energy sources.

The future research directions will focus on assessing the long-term impact of energy efficiency projects funded by financial institutions on environmental and economic components. These directions will require a comprehensive approach, including case studies and comparative analyses, to evaluate the effectiveness and sustainability of these initiatives and to develop efficient strategies for financing energy efficiency projects.

## 5.  CONCLUSION

The involvement of financial institutions consists not only of providing loans and financing but also of providing consultancy and assistance for the identification and evaluation of energy efficiency projects.

Through their financial expertise and extensive networks of relationships, financial institutions can facilitate access to capital and establish partnerships between clients, project developers, technology providers, and other interested parties.

Moreover, their involvement in promoting energy efficiency projects can have a significant impact on economic sustainability and sustainable development, contributing to reducing dependence on finite energy resources and protecting the environment by reducing greenhouse gas emissions. Thus, through their active commitment and support, financial institutions can play a key role in accelerating the transition to a more sustainable and energy-efficient economy.

Close collaboration between financial institutions, the private sector, governments, and other stakeholders is essential for promoting energy efficiency and achieving a successful transition to a greener and more sustainable energy system.

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# Population Mobility and Green Transition – Contribution to Sustainable Development

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**Abstract:** *The population represents a special subsystem and one of the spatial elements that is extremely variable in terms of its structure and dynamics. Thanks to this, it constitutes a basic component of every society that has a great influence on its functioning. Spatial mobility arises mainly as a consequence of globalization and the rapid development of technology. On the other hand, industrialization and climate change have emphasized the need for a green transition. In this regard, migrations from rural to urban areas can be seen as a supporting element of the acceleration of the green transition and the achievement of long-term sustainability.*

## 1. INTRODUCTION

The population represents a changing subsystem, the study of whose number and structure is of particular importance. Observing the population together with productive forces and division of labor, institutions and cultural policy, it can be said that it is a set of infrastructure and superstructure of global society (Mitrović, 2023, p. 44).

Spatial mobility is a complex process, especially if we consider the fact that the mechanical movement of the population is one of the basic features of human society. That the spatial mobility of the population is particularly important is shown by its different forms, which are closely related in time and historical perspective. The study of the spatial mobility of the population also includes the investigation of the impact of migration on the natural increase of the population, that is, on different social segments such as economic, age, etc. (Stojšin, 2015, p. 201).

Society is developing on a global level, within different dimensions: social, spatial, and temporal. Any development, however, cannot be understood without looking at economic, social, cultural and geopolitical development (Mitrović, 2023, p. 45). A feature of society is certainly the existence and variety of roles and positions of individuals and groups, as well as mechanical movement within the hierarchy of social totality. Social stratification therefore includes social mobility in time and space (Pantelić-Vujanić & Čukanović-Karavidić, 2014, p. 99). Social mobility, more precisely spatial mobility, means moving (migration), moving away (emigration) and moving in (immigration).

Along with the reduced representation of spatial mobility, along with the regression of a certain environment, there is a close connection with the irrational use of resources and energy, as well as global warming. All this made the need for a green transition process imperative.

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In this paper, the attention is focused on the features that concern the spatial mobility of the population in the context of the green transition in the function of studying sustainable development. Migration, as an ever-current phenomenon, and a consequence of geopolitical global issues, can be seen as one of the carriers of the green transition.

That is why the main goal of this work was to show how to achieve economic growth of the economy, respecting all three dimensions of sustainable development: economic, social and ecological.

## 2. SPATIAL MOBILITY

Spatial mobility is defined as the physical movement of the population (individuals but also groups) in a certain geographical space (Popović, 1967, p. 308). Spatial mobility is of particular importance because it shows the degree of development of an environment, that is, its progress or regression (Pušić, 2007, p. 672).

However, the concept of population mobility is not easy to explain, especially if you consider the fact that migrations also include those that take place daily. To avoid such doubts, the literature also offers a classification of spatial mobility of the population, which includes four basic types or categories: residential mobility, migration as a process of emigration and immigration, different types of travel (tourist, business, etc.) and daily population mobility (Stojšin, 2015, p. 202). Nevertheless, there are disagreements about this division, so one can often come across opinions that migration and spatial mobility are not synonymous, but that migration represents only those movements in space that result in a permanent change of place of residence. On the other hand, spatial mobility should consider movements that are of variable duration, such as, for example, local daily trips (to work, school), weekly trips, or seasonal trips (Stojšin, 2015, p. 202).

All these mentioned facts indicate that the concept of spatial mobility of the population, as well as migration, must be constantly studied and that the emergence of new forms of mobility must be considered. Thus, it is stated in the literature that migration represents a special form of spatial mobility, which includes a change of place of residence, but the term migration should by no means include short-term trips, the result of which is by no means a change of dwelling place (Đurđev, 2007, p. 326). Most often, the term spatial mobility of the population means all those movements, which are voluntary and motivated by rational motives. Thus, one of the frequent spatial mobility includes the direction of undeveloped - developed environment, that is, village - city (Pušić, 2007, p. 673).

Spatial mobility arises mainly as a consequence of globalization and the rapid development of technology. Observing the general situation around the world, it can be said that the spatial mobility of the population depends on the process of globalization, which leads to the emergence of mass migrations around the world. On the other hand, industrialization and increasingly pronounced climate changes emphasized the need for a green transition, in the context of studying migration from rural to urban areas, to achieve long-term sustainability.

Nevertheless, the analysis of spatial mobility on the territory of the Republic of Serbia shows that it is very small and that many reasons influenced it years ago, and which are still ongoing. For example, when talking about migrations in the territory of the Republic of Serbia, it is

emphasized that a lot is known about them at the same time, but also a little: "A lot, because it is a social and spatial phenomenon on stage of general events, and a little, because they are still lacking more comprehensive and complex research that would enable a more complete knowledge of this spatio-temporal phenomenon" (Jovanović, 2017, p. 125).

## 3. GREEN TRANSITION

Environmental challenges in the form of climate change and depletion of resources, as well as socio-economic disproportions in the form of income distribution, have caused global structural imbalances characteristic of the era of economic neoliberalism. Bearing in mind the specifics of the current economic environment, there was a need for a green transition towards a sustainable model of company activities and the overall economy. According to (Cedergren et al., 2022), the green transition represents a designed transformation of economic, technological, and ecological systems in order to achieve goals related to climate and sustainability. The nexus of the green transition is the realization of a green and low-energy economy. The green transition thus becomes a necessity, but also a development opportunity for many economies in the world.

The implementation of the green transition implies three main elements: 1) redefinition of economic rules, 2) circular growth model and 3) creation of a platform for adequate economic policies (Đuričin et al., 2023). One of the main goals of improving economic rules and policies is to support the change of the existing context and the implementation of a new economic system. The circular economy is based on the idea that the waste generated in the production and consumption phase becomes an input raw material in a new (secondary) cycle of production. The circular economy seeks to replace the conventional linear model of production (Haris, 2009), which is characterized by pollution and suboptimal management of resources and waste. The implementation of the circular economy is complementary to the leading idea of the fourth industrial revolution: "Do more, better, and faster, with fewer resources and more knowledge" (Đuričin et al., 2023). Also, the circular economy encourages the emergence of new markets, consumer categories and business models, which is in line with green growth. In other words, the circular principle enables economic growth that respects environmental limits.

One of the main challenges is the question of financing the green transition. There are several options for increasing the investment potential and acquiring the necessary financial resources: 1) carbon taxes, 2) green credits, 3) green subsidies, 4) green bonds, 5) funds from the state budget, 6) private public partnership.

Achieving the full scope of the green transition requires coordination of various activities at the micro, macro and international levels. Consequently, the framework for the application of sustainable development goals-SDG standards at the economic level and environmental social governance-ESG standards at the enterprise level is defined. The stated goals are very compatible and represent a kind of concretization of the green transition in practice. According to (Đuričin et al., 2024), the green transition has the potential of a catalyst for new industrialization.

Effective implementation of the green transition encouraged the definition of the Green Deal[3] in the European Union in 2019 (Kougias et al., 2021). In addition, the Green Agenda for the Western Balkans is currently active in Serbia, and the Action Plan for the Green Transition will be

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[3]    One of the main goals of the Green Deal is to make Europe a climate-neutral continent by 2050 (Kougias et al., 2021).

defined. The action plan could have four priority parts: 1) energy transition, 2) financing and mitigation of climate effects, 3) population and 4) overall inclusiveness, which form the base and starting point for defining future steps. In this way, the Green Deal in the EU and the Green Agenda for the Western Balkans can have the potential of a long-term growth strategy.

In this regard, the human factor can be seen as the carrier and accelerator of the green transition. In general, the population through research and development processes encourages innovation, which is a key feature of the green economy. Namely, innovations are of exceptional importance in the use of energy-efficient technologies, renewable sources, recycling, green products, as well as in the mitigation of global warming. As a consequence of geopolitical global issues, population migrations occur, which accentuates the aforementioned processes and contributes to and accelerates the green transition. Although migration can increase pressure on resources, negative externalities and other economic imbalances, it can also contribute to the diffusion of ideas and the implementation of various global green solutions.

The link between migration and sustainability is significant for several reasons. First, the spread of innovative knowledge as well as the adoption of examples of different business practices, affects a better understanding of current green trends and the need for a green transition. Second, the role of the population is reflected in the more effective adoption of SDG and ESG standards. Even though the sustainable development goals are defined at the global level, their realization begins precisely at the national level through various regulatory and incentive mechanisms (Malinić & Vučković, 2024). In other words, the necessary conditions for realizing the full potential of sustainability are the result of the synergistic effect of institutional support and individual entrepreneurial initiative. Third, the circulation of the population facilitates the change of the existing paradigm of the company and influences the strategic turn in the context of adapting to green business conditions. Last but not least, population mobility encourages entrepreneurship as well as economic activity in various sectors, including green. In this way, preconditions are created for sustainable economic growth, which respects the economic, social and ecological dimensions.

## 4. CONCLUSION

The paper examines the phenomenon of social mobility with special reference to the connection with the green transition, one of the characteristics of the global economic environment. At the very beginning, the specifics of society are presented, as important components of the social context of sustainability. In general, at the global level, society develops within different dimensions: social, spatial and economic. Spatial mobility often arises as a consequence of globalization and the rapid development of technology. In this regard, thanks to spatial mobility, we can talk about the degree of development of an environment, and depending on its representation, we can see its progress or decline.

Global warming and constant pressure on renewable and non-renewable resources conditioned the process of green transition. Namely, the green transition is a necessity, but it can be seen as a development opportunity for modern global economies. As such, it presupposes the redefinition of existing economic policies, the implementation of circular principles, the energy transition, as well as the participation of the human factor as an accelerator of the transition itself. Bearing in mind the above, the role of migration as one of the carriers of the green transition was analyzed.

Although social mobility raises specific challenges in the form of disproportions in the distribution of income, and the appearance of other social inequalities, it can also improve the ecological image and contribute to the realization of the concept of sustainability. To begin with, the diffusion of ideas, new knowledge, business solutions contribute to the creation of innovative capacity, which is of crucial importance for the use of clean technologies and the application of the green economy concept. Furthermore, migration can encourage the strengthening of local entrepreneurship, which, combined with the necessary institutional support, has a synergistic effect in developing green markets and products. In addition to the adoption of new ideas, the role of the population is also reflected in the more efficient adoption of ESG and SDG standards, which makes companies more flexible in defining new business forms, and more responsive to continuously changing environmental factors. In other words, social mobility contributes to an easier understanding and perception of ecological trends and needs, which can result in the realization of the full potential of the green transition and improvement of overall social well-being. As such, the green transition creates the preconditions for long-term sustainable economic activity and growth.

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# Opportunities and Obstacles for the Introduction of a Fuell Cell Electric Vehicle Strategy in Europe as an Extension of the Product Portfolio of European OEMs

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**Abstract:** *Climate policy goals have now taken on a strongly dominant role in European mobility development. In the current preferred approach, European OEMs are focusing on the BEV strategy, which is considered an established technology. However, the shift towards a purely battery-oriented direction in Europe is advanced, yet there are still long ways to go before speaking of complete market penetration. Meanwhile, Asian and American providers have embedded themselves in the European market, threatening to snatch significant shares from European OEMs in the overall market. Therefore, a separate approach has emerged to determine possibilities for expanding the product portfolio to FCEVs in Europe, as this market is still in its early stages internationally. An empirical approach was used to identify the factors European OEMs see as implementation or barriers to an FCEV strategy. The results indicate that, generally, such a strategy extension appears feasible in many factors, yet there are hardly any implementations for real feasibility. Costs and model portfolios are particularly emphasized here. However, there are also cautious attitudes due to a lack of refueling infrastructure and perceived insufficient demand on the customer side.*

## 1. INTRODUCTION

EU has set itself an ambitious target and wants to become the first climate-neutral continent by 2050. The EU and its members have committed to this in the European Climate Law as part of the Paris Climate Agreement. The aim is to reduce emissions by 55% by 2030 compared to the 1990 benchmark, and then achieve climate neutrality a further 20 years later. Requirements have been set in various areas to make this achievable. According to Comer (2022), the transport sector occupies an important position here, as 25% of emissions are caused by existing volume of traffic. In the area of private vehicle use, European OEMs have focused on purely electrically powered vehicles using a battery (Sievers & Grimm, 2022; Samsun et al., 2022). Other strategies, such as alternative fuels e.g. biomass or hydrogen cars, play a subordinate role as Samsun et al. (2022) say. Plans do not appear to be in line with the targets set, as various factors play a role in their realization. According to Hattrup-Silberberg (2023), the dependencies concerning the production of batteries for battery electric vehicles (BEV) and the supply of raw materials for manufacturing are considered to be high in view of the dominant Chinese supplier market. In addition, Maihold (2022) notes that the OEMs must ensure that humanitarian conditions for the extraction of raw materials and requirements for the sustainability of extraction are met.

Maihold (2022) also says that these influences must be considered in addition to emerging risks in the supply chain (SC) conditions, as geopolitical factors are increasingly exposing them to the risk of more difficulty in obtaining the necessary components for electric car production.

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The question arises as to why the OEMs in Europe do not rely on alternative strategies because of emerging risk factors and high political requirements, which on the one hand offer them the prospect of lower dependencies and at the same time fulfill legal situations. In order to analyse this from the perspective of OEMs in Europe, a survey of the largest OEMs was conducted to determine factors preventing an expanded strategy. The focus here was placed on fuel cell electric vehicles (FCEV), as this is where the greatest potential is seen.

## 2. STATE OF RESEARCH

The views of European OEMs concerning expanding the range to include FCEVs have not been scrutinised. Research in databases and journal archives since 2018 did not reveal any results that included a direct survey of OEMs. The European OEMs would be an important determining factor as to why FCEV technology is not being implemented in private cars. By determining parameters that the OEMs themselves consider to be an obstacle, conclusions can be drawn about existing infrastructure conditions and internal corporate factors that show whether and how an expansion of the range alongside BEVs should be organised and what role European policy and national can play.

The article by Samsun et al. (2022) provided a comprehensive international inventory of the FCEV market. The results show the importance of fuel cells and hydrogen in mobility in Asia, the USA. The statistics show that there is no FCEV strategy in Europe.

Sievers and Grimm (2022) published a similar publication in 2022, which shows how research and development in the field of FCEVs with patent figures compares to BEVs and plug-in hybrid electric vehicles (PHEVs). The authors show that Asian manufacturers from Japan, South Korea and China already have a major lead in the fuel cell sector.

Menski et al. (2022) have analysed the political and economic strategy in Japan and concluded that with the additional hydrogen strategy, the country will be better able to achieve its climate targets by 2050 than Europe.

For the rapidly expanding Chinese FCEV sector, Wang (2022) has outlined the roadmap for the Chinese government's and national companies' goals for 2021, which aims to ensure the country's climate neutrality in 2060 using hydrogen. It is already apparent that urban centres in particular are preparing for the increasing use of FCEVs and are developing rapidly.

With regard to surveys in the field of FCEV, surveys were primarily conducted among potential users/customers. These were designed for various countries and investigated possible usage behaviour with more detailed information about fuel cell technology (Loengbudnark et al., 2022; Schneider, 2017).

In general, according to the results of Alvarez-Meaza et al. (2020), most publications in the field of FCEVs can be found in the USA and China, followed by Japan and South Korea. Germany is the first European representative to appear in research publications in fifth place, followed by France and the UK.

It shows a need to present the OEM's point of view with regard to the potential establishment of an FCEV strategy and the obstacles that exist in this view.

## 3.  METHODOLOGICAL APPROACH

### 3.1.  Preliminary Considerations for Subject Specification

As the survey approach developed was recognised as an initial survey of European OEMs, the basic considerations were incentives for participation and the possibility of a relatively accurate assessment of views. In order to develop an approach for this, consideration was given in advance to who should answer the questionnaire in sufficient quantity and relevance-related quality to determine the views on an FCEV strategy.

Based on the view of organisations from a social perspective, as represented by companies, as a mesoperspective, the departments provide a micro-perspective which due to the close interlocking of the holistic management view of companies, also have an overall organisational knowledge and cannot be viewed as isolated parts stats Meyermann et al. (2020). For this reason, specific departments were selected that know the existing market as well as technical possibilities. The departments addressed therefore consisted of the marketing department, research and development and sales. All were recognised as having basic knowledge and expertise relating to FCEV market and at the same time being able to determine factors and parameters that could cause a previous FCEV strategy in the company or in general to fail or not be implemented.

The selection of existing OEMs in the European market was based on two fundamental factors. Firstly, literature-based results were used to determine which manufacturers had already been involved with fuel cell vehicles in the past and had constructed prototypes and small series according to Weider et al. (2004). In addition, OEMs were selected that offer a wide range of models and have a large number of model types in their portfolio. This resulted in the following OEMs:
- BMW/Mini,
- Mercedes/Daimler/Chrysler (German headquarters),
- Fiat,
- PSA Peugeot/Citroën/DS,
- Renault/Nissan (French headquarters),
- General Motors/Opel (German headquarters),
- VW/Audi/Skoda/Seat.

The selected OEMs were contacted and asked to participate. The questionnaire was offered online and provided with a link for participation so that there was a certain guarantee of addressing participants from the selected test subject groups. The individual test subjects were granted anonymity, which was also expressed in the fact that in this first approach to an OEM survey on the topic, no country-specific differences or economic figures, company names or other information had to be provided.

### 3.2.  Questionnaire Design and Methodological Implementation

Due to the geographical distance between the OEMs, an online survey was conducted. The software Survio ®used for this, which was used as licence software. It enables an appealing and self-explanatory design for the test persons and is easy to use. The participants received a link in the invitation e-mail that led them directly to the survey. The recording of responses is automated and can be accessed both as a design template and in the raw data via Excel. This made it easy to analyse raw data with the statistical software IPSS from IBM ©.

The questionnaire design of the items was based on the parameters recognised as necessary, which could be seen as a reason for avoiding an FCEV strategy. These were determined by the following points in the orientation of the questions.

- Costs,
- Demand,
- Production factors and sustainability,
- Personnel issues,
- Infrastructure,
- Future potential.

The parameters were derived from various study results and research literature derived from customer surveys or general research approaches.

Concerning demand, a customer survey conducted internationally by Proff et al. (2023) found that the potential demand for drives such as biodiesel or FCEVs is <10%. Customers are also very reluctant to buy an FCEV due to the costs, which are far higher than the prices charged for BEVs, PHEVs, or conventional drives stats Loengbudnark et al. (2022) and also Schneider (2017). The question of new training content for the production of FCEVs, which has already been investigated in research during the switch to BEVs by Sievers and Grimm (2022) and also the National Platform Future of Mobility (2021), is of particular relevance to OEMs. According to Samsun et al. (2022), FCEVs are also still rated as unattractive, as the refueling infrastructure in Europe is being expanded, but is still far from being widely available.

The perception of certain concepts or behaviours of social groups or organisations is investigated in marketing, customer surveys or company surveys by means of a Likert scale survey (Heiberger & Holland, 2015). In this case, a limited number of selection parameters are used in constant use. The response options for the individual questions were

- 1 = does not apply at all,
- 2 = conditionally applicable,
- 3 = applies almost completely and
- 4 = absolutely true.

The main objective of the study as an initial survey was to obtain a general assessment from the OEMs as to whether or not certain aspects and prerequisites are necessary in order to be able to implement an FCEV strategy for BEVs and others.

## 4. RESULTS

The results obtained are assigned to the questions continuously and summarised here.

Many of the respondents from all three departments at the OEMs were in favour of introducing an FCEV strategy and production in the next 10 years or less. 51.4% of sales (SA), 48.2% of R&D and 35.5% of marketing (MA) think that there will be an expansion to an FCEV strategy. When assessing a gap in research and development at their own company, it was found that although development is underway, the statement was confirmed to some extent. 48.1% of R&D, which are particularly relevant here, stated that research and development is ongoing. The same number stated that this was partly true. From this, it can be deduced that about half of the OEMs are researching and developing in the field of FCEVs, but there is no standardised orientation for establishing a strategy in Europe.

Financial possibilities of establishing an additional FCEV strategy, the assessment is that they consider the financial scope to be limited, although not impossible. 65.2% of SA departments, 48.4% from MA and 29.6% from R&D are positioned here. 33.3% of the R&D are sceptical about the assessment of the financial possibilities, which allows a conclusion to be drawn about the investments in the FCEV area at one-third of the OEMs.

The connection between the refueling infrastructure and an FCEV strategy at OEMs in Europe is seen by the majority of respondents as crucial. 41.9% of MA, 51.4% of SA and 29.6% of R&D agreed with the statement. What is striking is the high level of rejection of the statement among the R&D, with 48.2%, almost half of them agreeing. Looking at the proportion of German participants, it can be assumed that they perceive a relatively well-developed national infrastructure, which may explain this result. According to Prawitz (2023) as of the end of 2022, Germany has 105 hydrogen refueling stations in operation, followed by France with 44 and the UK and Switzerland with 17 refueling stations each.

When it comes to the statement that an FCEV strategy makes no sense because there is not enough hydrogen production and storage facilities, 22.6% of MA, 54.3% of SA and 40.7% of R&D disagree. The majority of MA largely disagree, with 45.2% as a proportion. The results reflect the efforts in Europe to make hydrogen more widely usable as an energy carrier, which has been in an expansion phase since 2022. The construction of LNG terminals and extended agreements with producer countries show that expansion steps are being taken to make hydrogen usable for industry and energy supply stats Wolf (2023). In addition, the potential for utilising electricity generation from sustainable sources for the electrolysis of hydrogen is considered high. Wind and solar energy are the two focused energy sources here. Coastal regions are ideal for wind turbine installations, while southern Europe offers numerous areas for solar energy. According to Clausen (2022), existing production potential is currently still covered by grey and blue hydrogen.

The perception of the OEM departments regarding the introduction of an FCEV strategy only under the condition of environmentally friendly hydrogen production, the interviewees only recognised this connection to a limited extent. Around 48% of R&D did not recognise this as an obstacle, as did around 26% of SA and around 29% of MA. 18.5% of R&D, 31.4% of SA and 38.7% of MA recognised this as a lesser reason. Thus, it can be stated with a clear majority that the introduction of an FCEV strategy is not solely dependent on the production of green, ecologically clean hydrogen. The International Hydrogen Compass for 2022 states that leading industrialised nations worldwide want to use and plan to expand a hydrogen strategy for various areas of energy supply. The core of this strategy has so far been grey hydrogen, but there are plans to expand production in the area of blue and green hydrogen. This would reduce the environmental impact of production and the costs of ramp-up phases in production stats Blaumeiser and Arzt (2022).

As large-scale hydrogen production to date has been concentrated in non-European countries, it will only be possible to realise an FCEV strategy in five years through closer international cooperation with hydrogen exporters. Here too, the opinions of those surveyed tend to indicate that this is not the case. 57% of SA, 35.5% of MA and 37% of R&D believe that this is not the case at all. A further large proportion deny this to some extent. This shows that the current economic relationships and interdependencies would be sufficient to make an FCEV strategy feasible. Current international collaborations and the development of LNG terminals in coastal cities

with distribution networks make hydrogen an increasingly important alternative energy source. The EU is also planning to expand its own hydrogen production to 10 million tons by 2030 stats Clausen (2022).

The view of OEMs is different when it comes to producing their own batteries in Europe. 45.2% of MA, 45.7% of SA and 37% of R&D see this as a barrier to implementing an FCEV strategy. 13% of MA, 20% of SA and 40.7% of R&D do not see this as an obstacle to designing such a strategy. The proportion of R&D is probably since research into new battery generations is taking place at a high level in Europe, but this also needs to be integrated into European production. According to Kagermann et al. (2021), the realisation is still too slow but would protect Europe from raw material shortages or difficult supply conditions with further development of the batteries.

The statement that an FCEV strategy requires greater political protection and support than the existing BEV strategy did not receive any significant approval. Only 13% of MA, 8% of SA and around 4% of R&D see a need for more political protectionism and support to make an FCEV strategy feasible.

The statement that there are currently too few customers for such a strategy to trigger efficient production received higher approval ratings. 54.3% of SA, 54.9% of MA and 30% of R&D are of the opinion that potential and actual demand is too low. SA and MA are considered to have a greater knowledge of the demand markets, so that the low position of R&D is understandable. The low demand is reflected in the low numbers of FCEVs on the road. For 2021, Samsun et al. (2022) state that of the 51.437 vehicles registered worldwide, only Germany has 1.542 in all classes (cars, lorries and buses). In the rest of Europe, the figures are far below.

With regard to the necessary efficiency of FCEVs compared to BEVs for the introduction of an FCEV strategy, the majority of OEM departments think that this would not be a reason to prevent it. 80% of SA, 61.3% of MA and 55.6% of R&D see a high potential for FCEVs. This also corresponds to research on the range and ease of use of FCEVs. It can be assumed that refueling times will be the same as for petrol or diesel vehicles and that ranges will be greater. The VDI and VDE (2019) state that only the utilisation efficiency of the primary energy is slightly lower than that of BEVs.

The respondents were ambivalent about the usefulness of introducing an FCEV strategy by covering all model types. Some agree to a certain extent, while a roughly equal proportion disagree. At 48.6%, SA are of the opinion that a broad range of models would have to be offered in order to make a strategy appear sensible. The other departments are almost equally divided between those who tend to agree and those who disagree. Current developments in the manufacture of vehicles are moving strongly in the direction of sport utility vehicles (SUVs), which appear to be increasingly favoured by all suppliers in Europe according to Bormann et al. (2018) and also Hagedorn et al. (2019).

Perceptions of a lack of existing OEM production capacity are not seen by the vast majority as a barrier to the adoption for an FCEV strategy. 85.7% of SA, 71% of MA and 77.8% of R&D see sufficient production capacity at OEMs to establish FCEV production. In relation to the previous results, expanded battery production in Europe would be necessary for increased resilience and simpler SCs.

The OEM departments argue similarly with regard to the training situation in relation to an FCEV strategy. More than ¾ of respondents believe that the existing employee training programmes are sufficient to manage FCEV production without any problems. This would eliminate the need to reorganise curricula and training content as well as the need for further training.

The last point addressed the use of hydrogen for the production of alternative fuels (e.g. biofuels, methanol and ethanol), which could be of more interest to the passenger car market. The majority were not in favour of this. 94% of SA, 80.6% of MA and 92.6% of R&D were negative. The respondents also see the potential of hydrogen production inefficient utilisation for FCEV production. This is also in line with the barriers to the production of biofuels. Too much land is required for cultivation, which would be lost to the rest of the agricultural industry. In terms of biodiversity, large monocultures also run counter to the requirements of species conservation stats Zapf et al. (2020) and Masoumi et al. (2019).

## 5.   DISCUSSION

The results of the survey of European OEMs reveal the following factors that are considered to be obstacles to an FCEV strategy.
- The refueling infrastructure must be expanded.
- The battery production required in Europe must be expanded for FCEVs and BEVs.
- Customer demand is too low and will remain so in the foreseeable future.
- Several model types for the FCEV strategy.

Therefore, the factors of hydrogen production and import are not factors where the majority of the three departments do not see a problem. Similarly, production capacities, employee training and finances are not an obstacle to a premature exit strategy for FCEVs.

It must therefore be questioned why - despite many positive perceptions of the possibilities - a comprehensive expansion strategy using FCEVs has not yet started. This would also be necessary in relation to lorries, buses and others, as prototypes and small series to date would enable meaningful use. Especially in the passenger car sector, European OEMs are still reluctant to mass-produce hydrogen drives. Instead, according to Clausen (2022), they are sticking to small series and prototypes. This is against the opinion of consumers, according to a survey conducted by Civey on behalf of Der Spiegel. It shows that the majority of citizens would prefer an FCEV to a BEV stats Sorge (2023). However, a hydrogen car requires decisive factors to make it profitable for customers. The purchase costs for this vehicle class are still too high for it to be profitable as a mass product says the National Platform Future of Mobility (2021). This was and still is partly a reason for the still very low penetration of all-electric vehicles in the transport sector according to Hagedorn et al. (2019) and also applies to FCEVs.

One factor that is repeatedly included in the discussions is the cost of producing hydrogen. A distinction must be made between grey or brown hydrogen and the sustainable production of green hydrogen. This would require an expansion of wind and solar energy infrastructure. In the current constellation of a high import quota of hydrogen, costs arise above all in the production and liquefaction in the country that exports, as well as the transport with corresponding special ships. If Europe were to optimally utilise the possibilities for producing electricity using wind and solar energy, it could supply itself with a high proportion of its own energy. It would also be possible to enter into cooperation with surrounding countries that could also provide

high capacities for solar and wind energy. These would be North African countries with short supply distances stats Heuser (2020).

Until the 2000s, hydrogen was never a prioritised energy source for a comprehensive distribution infrastructure, so existing networks are used as an argument as to why a large-scale vehicle industry is not being built. An infrastructure covering the whole of Europe with distribution networks via pipeline would still have to be expanded. A pipeline network would cost energy suppliers between 80 and 143 billion Euro and would be ready in 2040. According to Wolf (2023), this network would cover all areas of application for hydrogen. It would require large-scale state funding, which would then make hydrogen a viable alternative.

A new factor for the industry has been added to the discussion about SC sustainability, which raises compliance. Existing SC for the production of electric vehicles needs to be reviewed and reorganised if there are risk-based factors that threaten compliance. The raw materials for battery production in particular are increasingly coming under scrutiny, as they are mined and processed in countries where SC compliance needs to be urgently examined. Based on this, an in-house hydrogen supply and utilisation in the transport sector would simplify SC and compliance requirements for OEMs. The battery would still be a problem area until sufficient in-house production is established but would reduce as the strategy expands. International market volumes are at a comparatively low level if the BEV infrastructure is taken as a counterpart. The course has been set in Asian countries with their own large OEM infrastructure to switch to an FCEV strategy in the ramp-up phase and thus take a leading market position. If Europe delays its entry, it will once again be in an inferior position, as in the BEV sector.

The analysis of the OEM results shows that an additional strategy with FCEVs does not fail in many factors due to the OEM's basic requirements. Even the fear that customers will not generate demand cannot serve as a reason for rejection, as many citizens would be prepared to purchase an FCEV. The basic conditions still have to be increasingly created, which is mainly due to government agencies as triggers. Once the hydrogen infrastructure has been developed and is available nationwide, all subsequent infrastructure requirements would be integrated into the market. This would also eliminate the chicken-and-egg theorem, in which the state as a strategic partner would take the first step.

## 6. CONCLUSION

The question of the opportunities and risks of an FCEV strategy was investigated in a survey of European OEMs in the form of a departmental survey. This showed that risks identified for OEMs from their perspective are not as prevalent as initially assumed. Neither finances, production capacities nor labour and training conditions stand in the way. The promotion, supply through imports and in-house production of hydrogen are also not seen as a market barrier.

Rather, external risk-based factors are put forward that prevent an FCEV strategy. According to the OEMs, these include refuelling infrastructure, supposed lack of demand, internationally dominant battery production and a requirement for model depth and breadth.

All of these factors mentioned could be largely resolved within the next 10 years, so it would be reasonable to assume that an FCEV strategy could be developed within this time frame. If European OEMs miss this timetable, they run the risk of losing touch with FCEV technology, as has already happened to some extent with BEV technology.

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# The Impact of Electric Vehicles on the Environment

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**Abstract:** *The article examines the environmental implications of electric vehicles, focusing on their impact on air, soil, water, climate change, and carbon footprint. The analysis draws on sources published after 2020.*

*The primary goal of the research is to evaluate the positive and negative environmental effects of electric vehicles.*

*While electric vehicles produce zero tailpipe emissions, a broader perspective reveals a more complex picture. The manufacturing process for electric vehicles can generate up to 70% higher emissions than that of gasoline vehicles.*

*Despite this, sales of electric vehicles have surged in recent years. Global sales increased by 49% to 6.2 million units in the first half of 2023, representing approximately 16% of the global light vehicle market.*

*Electric vehicles reduce air pollution compared to traditional vehicles but do not entirely eliminate the problem. Furthermore, the electricity powering electric vehicles often comes from power plants, contributing to soil and water pollution.*

*To achieve a more significant climate benefit, electric vehicles generally need to be driven over 90,000 kilometers before surpassing the environmental impact of internal combustion engine vehicles.*

## 1. INTRODUCTION

In an era characterized by growing environmental awareness, electric vehicles have emerged as a prominent symbol of sustainable transportation. As technology has advanced, these vehicles have become increasingly viable and accessible, offering a potential solution to the pressing challenges of climate change and air pollution. This article explores the environmental implications of electric vehicles, examining both their positive and negative impacts.

Data for this analysis was gathered using Google Search, Google Scholar, and OpenAI's ChatGPT.

The research addresses two primary questions:
1. What are the positive environmental effects of electric vehicles?
2. What are the negative environmental effects of electric vehicles?

## 2. HISTORY AND DEVELOPMENT OF ELECTRIC VEHICLES

The beginnings of electric vehicles emerged in the 1830s with Scottish inventor Robert Anderson, whose motorized carriage was built somewhere between 1832 and 1839. However, as rechargeable batteries were not yet available, it was more of a novelty than a practical

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transportation device. Another Scot, Robert Davidson, created a prototype electric locomotive in 1837. Rechargeable batteries appeared in 1859, making the idea of electric cars more feasible. Around 1884, inventor Thomas Parker in England helped introduce electric-powered trams and produced prototypes of electric cars. By 1890, William Morrison patented an electric carriage, possibly built as early as 1887. With front-wheel drive, 4 horsepower, and a claimed top speed of 20 mph, it had 24 battery cells requiring recharging every 50 miles (Wilson, 2023).

In 1897, Walter Bersey designed and introduced a fleet of battery-powered taxis on the streets of London, while New York City had a fleet of around 60 electric taxis. By 1900, electric cars accounted for one-third of all vehicles on US roads. However, between 1920 and 1935, improved road infrastructure and cheap, readily available gasoline led to a decline in electric vehicles. Electric cars were limited to urban use due to their slow speed and limited range, and by 1935, they had nearly disappeared. In the 1960s and 1970s, gasoline prices in the US skyrocketed, sparking renewed interest in electric vehicles. In the early 1990s, the California Air Resources Board began pushing for vehicles with lower or zero emissions, such as electric cars. In response, car manufacturers began developing electric models. American electric car manufacturer Tesla Motors began working on the Tesla Roadster in 2004, which was first delivered to customers in 2008. The Tesla Roadster was the first highway-legal all-electric car and utilized lithium-ion battery cells. It was also the first to travel over 200 miles on a single charge. Global sales of fully electric cars and vans surpassed one million in September 2016. In May 2021, the UK government announced that over 500,000 ultra-low emission vehicles were on the roads across the country. The UK is at the forefront of the electric vehicle revolution, with the government committed to ending the sale of new gasoline and diesel cars by 2030 (Energy Saving Trust, 2023).



**Figure 1.** Electric car built by Thomas Parker, 1895
**Source:** Made Up in Britain, 2023

## 3. PRODUCTION OF ELECTRIC VEHICLES

Today's electric vehicles differ significantly from internal combustion engine vehicles with gasoline propulsion. The new breed of electric vehicles has benefited from a series of unsuccessful attempts at designing and manufacturing electric vehicles using traditional manufacturing

methods that manufacturers have been using for decades. In the past, the emphasis in electric vehicle production was on protecting the motor, but now that focus has shifted to protecting the batteries. Automotive designers and engineers are completely rethinking the design of electric vehicles and creating new manufacturing and assembly methods for their production. They now design electric vehicles from the ground up with a strong focus on aerodynamics, weight, and other energy efficiency aspects (C3 Controls, 2023).

The government has proposed a ban on the sale of new gasoline and diesel engine cars from 2030. The problem with this initiative seems to largely rely on conclusions drawn solely from one part of a car's lifecycle: what comes out of the tailpipe. Electric cars, of course, have zero tailpipe emissions, which is beneficial for the environment, especially regarding urban air quality. However, if you zoom out and look at the broader picture, including car production, the situation is very different. Ahead of the Cop26 climate conference in Glasgow in 2021, Volvo released data claiming that greenhouse gas emissions during the production of an electric car are nearly 70% higher than those of producing a gasoline car. How so? The issue lies with lithium-ion batteries, currently installed in nearly all electric vehicles: they are excessively heavy, require a massive amount of energy to produce, and are estimated to last just over 10 years. It seems like a perverse choice of hardware to lead the fight against the climate crisis (Atkinson, 2023).

A recent study published by ScienceDirect indicates that while pollution arising from the extraction and production of batteries remains the same or slightly higher than the production process of gasoline or diesel engines, increasing the efficiency of the production and infrastructure processes is crucial to reducing emissions during the production of electric vehicles. Chinese battery manufacturers produce up to 60% more CO2 during production compared to ICE engine production, but according to the report, manufacturers in the country could reduce their emissions by up to 66% by adopting American or European production techniques - China is also expected to rapidly advance in the adoption of electric vehicles as its renewable energy industry continues to grow (Lovell, 2020).

High-performance lithium-ion batteries used in electric vehicles fully charge with minimal energy loss. They are made of carbon or graphite, metal oxide, and lithium salt. These elements compose positive and negative electrodes and are combined with electrolytes to produce electric current. Once the battery reaches the end of its life, it can be recycled, with approximately 80% of components recyclable. Battery cells in electric vehicles contain lithium carbonate, nickel, manganese, and cobalt. The key component of electric vehicle batteries is lithium, and demand for this material has been high so far. This poses a problem as discovering new sources requires expertise in where lithium is located on the Earth's surface and how concentrated it is. Materials used in these batteries, such as cobalt, nickel, and lithium, are all obtained through environmentally harmful methods. Nearly 500,000 liters of water are required to extract one ton of lithium (Nichols, 2023).

Electric vehicles are much more cost-effective to maintain than gasoline-powered cars. A lithium-ion battery-powered motor does not require oil changes, part replacements, and will not have the general wear and tear a combustion engine might have over its lifetime. Instead, all the work is done by the electric car battery, making the car cheaper to maintain. The cost per kilometer for driving an electric car is generally also cheaper than that of a similar gasoline-powered model - meaning you can travel further for less money (Peugeot UK, 2024).

## 4. GROWTH IN ELECTRIC VEHICLE SALES

Tesla entered the electric vehicle market in 2003, but the electric vehicle market exploded only when they introduced their mass-produced Model 3 in 2017. Since then, the industry has seen a 67% jump in electric vehicle sales from 2019 to 2020. Established car manufacturers like Chevy, Ford, Toyota, and others are joining the electric vehicle game, along with newcomers like Rivian and Lucid Motors. In this crowded field, success or failure depends on how these companies tackle the unique challenges of the electric vehicle manufacturing process (White, 2023).

Electric vehicle markets are experiencing exponential growth, with sales surpassing 10 million in 2022. The share of electric vehicles in total sales more than tripled in three years, from about 4% in 2020 to 14% in 2022. The sales of electric vehicles are expected to continue growing strongly. In the first quarter, over 2.3 million electric vehicles were sold, roughly 25% more than in the same period last year. Current trends suggest that the introduction of electric vehicles could eliminate the need for 500 million liters of oil per day (Connelly, 2023).

The latest research from Canalys shows that global electric vehicle sales increased by 49% to 6.2 million units in the first half of 2023. Electric vehicles account for 16% of the global light vehicle market, a significant increase of 12.4% compared to the first half of 2022 (Canalys, 2023).

Figure 2 illustrates the growth in electric vehicle sales in China, Europe, the USA, and elsewhere in the world from 2016 to 2023. In 2016, sales were at their lowest, with around 700 thousand electric vehicles sold (300 thousand in China, 200 thousand in Europe, and 200 thousand in the USA). However, we can see that sales have been increasing year by year. In 2023, almost 14 million electric vehicles were sold (8 million in China, nearly 3.5 million in Europe, over 1.5 million in the USA, and almost 1 million elsewhere in the world).
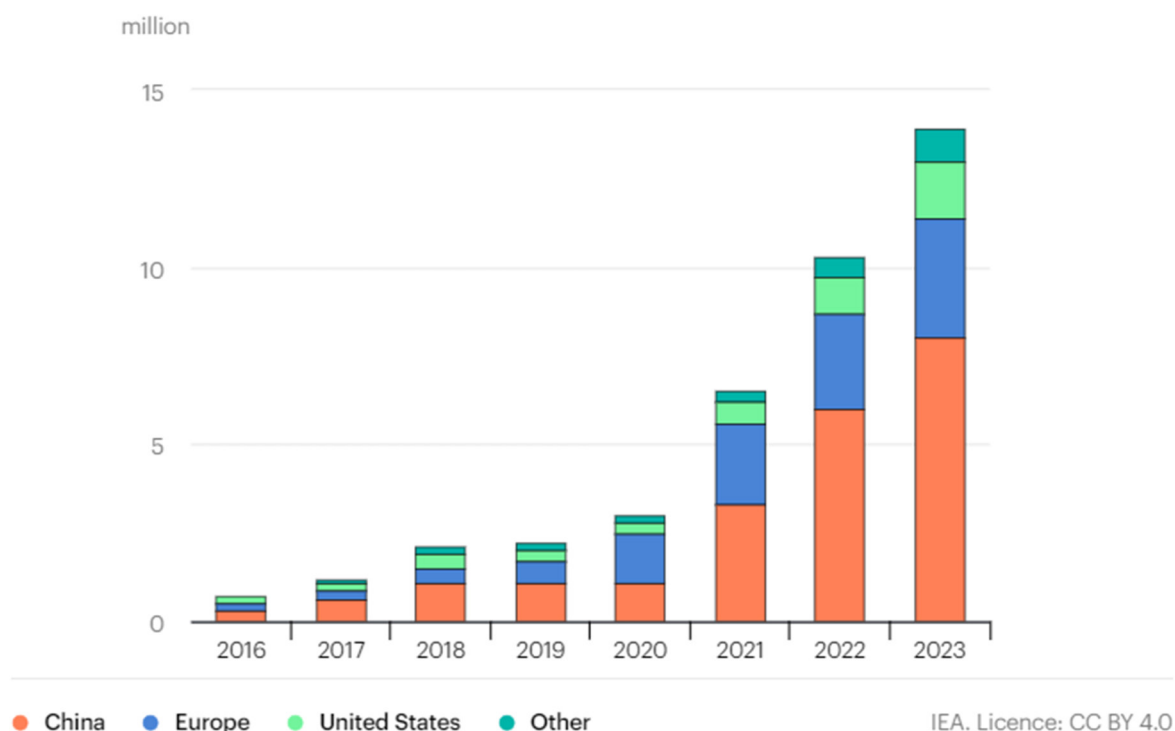


**Figure 2.** Display of electric vehicle sales
**Source:** Conelly, 2023

The transition of the automotive industry to electric vehicles is accelerating. The year 2026 is expected to be a turning point for the acceleration of electric vehicle adoption, leading the trends of automotive electrification forward. By 2030, more than one in four new passenger cars sold will be electric vehicles. Many major vehicle manufacturers worldwide have signaled the end of the internal combustion engine era as the transition to emission-free vehicles accelerates. It is expected that leading car manufacturers will represent over 70% of global electric vehicle production by 2030 (compared to 10% of all electric vehicle manufacturers in 2022). However, despite the rapidly growing choices available to electric vehicle consumers and the level of loyalty among electric vehicle buyers, the industry as a whole still needs to address consumer concerns about range, especially for those without garages or those traveling long distances. The solution lies in a collective effort involving multiple industries: the automotive industry, utilities, government, and private property owners such as shopping centers and residential developments. When these pathways converge, the trends in vehicle electrification will exponentially increase (S&P Global Mobility, 2023).

## 5.    IMPACT OF ELECTRIC VEHICLES ON AIR QUALITY

Toxic emissions from the exhaust pipes of diesel and gasoline cars have been causing air pollution problems in European cities for decades, leading to tens of thousands of unnecessary premature deaths every year. Now, as the sale of zero-emission electric vehicles across Europe is increasing and the end of internal combustion engines is in sight, the industry is grasping at straws to keep the environment-polluting engine alive. One claim reported by many newspapers is that electric cars will worsen air quality due to emissions of particles from non-exhaust sources such as tires and brakes (Krajinska, 2021).

Overall, electric vehicles reduce air pollution levels compared to gasoline and especially diesel cars. The magnitude of this reduction depends on their weight, age, and the type of car they replace, as well as the mix of electric power. Electric vehicles do not completely eliminate the problem. Non-exhaust emissions are still significant. Electric cars eliminate NOx and PM2.5 emissions from exhaust gases and reduce brake wear particles due to regenerative braking. If heavier, they may increase tire wear and road dust pollution. Non-exhaust emissions require much more research, especially on solutions such as improved tires, solid particle filters, the role of more automated driving, and vehicle weight. The best way to reduce local air pollution is fewer vehicles on the roads (Ritchie, 2023).

## 6.    IMPACT OF ELECTRIC VEHICLES ON LAND AND WATER

Electric vehicles can help reduce air pollution, but they can still cause contamination of land and water. This is because electric vehicles still rely on electricity, which is typically generated in power plants. These power plants use coal, natural gas, and other fossil fuels for electricity generation, which can result in emissions that contribute to soil and water pollution. Electric vehicles are powered by rechargeable batteries that contain a complex mixture of chemicals. Some of these chemicals include lithium, copper, cobalt, and nickel. While these chemicals may not be hazardous when the battery is in use, they can become harmful once the battery reaches the end of its life. Battery disposal poses a significant environmental challenge, as heavy metals and other harmful substances can leach into the soil, causing short-term and long-term damage. Another factor contributing to soil pollution from electric vehicles is the process of extracting materials needed for battery production. Extracting lithium, cobalt, and

other metals requires significant water and energy consumption. The mining process can also lead to deforestation, displacement of local communities, and other environmental hazards (Energy5, 2023).

The production of one ton of lithium (enough for ~100 car batteries) requires approximately 2 million tons of water, making battery production an extremely water-intensive practice. In light of this, the South American lithium triangle, consisting of Chile, Argentina, and Bolivia, has experienced severe water shortages due to intensive lithium extraction in the area. In Chile alone, 65% of the water in the region was used for lithium extraction. In the US state of Nevada, protests recently took place over the Lithium Americas Project due to the projected consumption of vast amounts of groundwater (Lakshmi, 2023).

In recent years, the use of lithium-ion batteries in electric vehicles has increased. Improper handling of waste batteries can lead to heavy metals contaminating the soil by leaching hazardous chemicals. Thus, anthropogenic activities are a key indicator of the increasing presence of toxic, hazardous waste in the soil due to waste from manufacturing processes and usage, which, without proper management, affects human health through the food chain due to the intake of soil pollutants into plants or food crops (Noudeng et al., 2022).

## 7. IMPACT OF ELECTRIC VEHICLES ON CLIMATE CHANGE

Although many electric vehicles are labeled as "zero emissions," this claim is not entirely accurate. Battery electric vehicles may not emit greenhouse gases from their tailpipes, but some emissions occur in the manufacturing and charging processes of the vehicles. Nonetheless, electric vehicles are undoubtedly less emissive than internal combustion engine vehicles. Electric vehicles will, in almost all cases during their lifetime, generate fewer carbon emissions than gasoline-powered cars. One source of emissions from electric vehicles is the production of their large lithium-ion batteries. The use of minerals, including lithium, cobalt, and nickel, which are crucial for modern electric vehicle batteries, requires the use of fossil fuels for mining these materials and heating them to high temperatures (Moseman, 2022).

Compact electric cars become more climate-friendly than internal combustion engine vehicles only after traveling 90,000 kilometers. If powered exclusively by green electricity, the threshold at which an electric car is cleaner would decrease to 65,000 kilometers. However, this is not happening in practice (Žurnal24, 2023).

Wide adoption of electric vehicles is among the measures needed to halt climate change. However, transitioning from gasoline and diesel cars will not be easy. The administration of U.S. President Joe Biden has proposed new rules to limit the emissions of steel horses, aiming to compel automakers to have electric vehicles account for two-thirds of all cars sold in the next decade. To fulfill this plan, the government will need to regulate many other aspects as well (Bloomberg Adria, 2023).

Simulations have shown that widespread adoption of electric vehicles would help limit global warming by at least two degrees Celsius. Nine countries, including the United States, have announced their intention to someday limit or ban the use of all internal combustion engines and reduce national emissions from tailpipes to zero (Yap, 2023).

## 8.   CARBON FOOTPRINT OF ELECTRIC VEHICLES

The batteries powering electric vehicles are responsible for a significant portion of emissions during the manufacturing process. Because electric vehicles are dirtier to produce but cleaner to drive, they must meet certain mileage thresholds before the environmental benefits are realized. In the US, a typical electric vehicle must travel between 28,069 and 68,160 miles before any emission benefits are accounted for (DeSmith, 2023).

Figure 3 illustrates different sources of electrical energy that power electric vehicles. This data highlights the environmental footprint depending on the energy source used to charge the vehicles, further connecting to the carbon footprint comparison between electric and gasoline vehicles discussed in the text. The largest contributions come from natural gas (38.32%) and coal (19.85%), followed by nuclear energy (18.60%), wind (10.47%), hydroelectricity (6.14%), solar energy (4.90%), biomass (0.64%), oil (0.54%), geothermal energy (0.40%), and other fossil sources (0.15%).
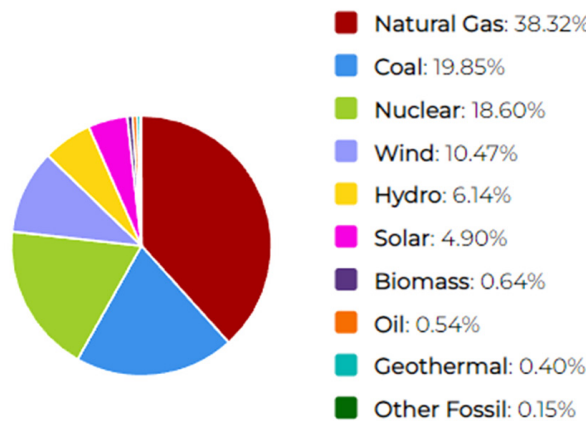


**Figure 3.** Sources of Electric Energy
**Source:** U.S. Department of Energy, 2024

Figure 4 illustrates a comparison of carbon dioxide equivalents emissions for all-electric, plug-in hybrid, hybrid, and gasoline vehicles. Gasoline vehicles have the highest emissions, followed by hybrids; plug-in hybrids and electric vehicles have significantly lower emissions. The green color represents emissions from electric vehicles, while gray represents emissions from gasoline vehicles.
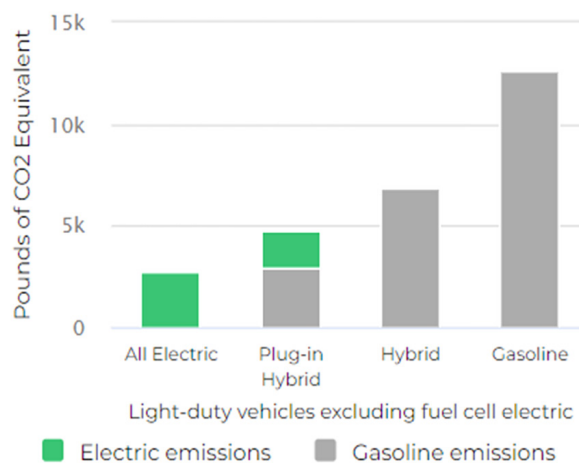


**Figure 4.** Annual vehicle emissions
**Source:** U.S. Department of Energy, 2024

For electric and hybrid vehicle models, it is often said that they are carbon neutral. However, the production of electric energy to power the car is not carbon neutral. Emissions from electricity production depend on the primary sources of energy used (e.g., fossil fuels, nuclear energy, renewable energy sources, etc.) and vary greatly between countries (Carbometrix, 2021).

Figure 5 refers to the emission levels of both electric and internal combustion engine cars, thus providing a comparative outlook on the performance of electric vehicles regarding carbon emissions. It does include electric cars, showing how their emissions, although lower, still vary based on manufacturing processes.

**carbon performance ranking, automakers, 2020**

Automakers are ranked on their average Well to Wheel emissions (WtW).

| Rank | Group | WTW (g CO2e/km) | Rank change (vs 2019) |
|------|-------|-----------------|------------------------|
| 1 | TESLA | 60 | 0 |
| 2 | TOYOTA | 170 | 0 |
| 3 | SUZUKI | 178 | 0 |
| 4 | RENAULT | 185 | 1 |
| 5 | HYUNDAI | 188 | 2 |
| 6 | BYD | 189 | −2 |
| 7 | HONDA | 193 | −1 |
| 8 | Mazda | 195 | 0 |
| 9 | SAIC | 196 | 1 |
| 10 | VOLKSWAGEN | 196 | −1 |
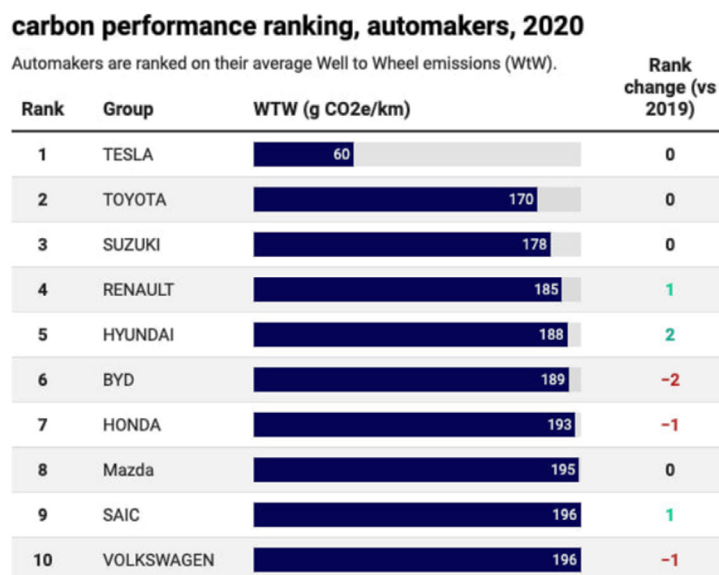
**Figure 5.** Automakers' emissions
**Source:** Carbometrix, 2021

## 9. ANSWERS TO RESEARCH QUESTIONS

**Q: What are the positive impacts of electric vehicles on the environment?**

It has been found that high-performance lithium-ion batteries used in electric vehicles charge fully with minimal energy loss. They consist of positive and negative electrodes combined with electrolytes to produce an electric current. When the battery reaches the end of its life, it can be recycled, with approximately 80% of its components being recyclable (Nichols, 2023).

The advantage of electric cars (2023) states that electric vehicles are much more cost-effective to maintain than gasoline-powered cars. A motor with a lithium-ion battery does not require oil changes, part replacements, or suffer from general wear and tear as an internal combustion engine would throughout its life. Instead, all the work is done by the electric car battery, making it cheaper to maintain. Additionally, the cost per kilometer for driving an electric car is cheaper than a similar gasoline-powered one, meaning you can travel further for less money.

Yap (2023) suggests that simulations have shown widespread adoption of electric vehicles could help limit global warming by at least two degrees Celsius. Many countries have announced their intention to eventually limit or ban the use of all internal combustion engines and reduce national emissions from exhaust pipes to zero.

**Q:   What are the negative impacts of electric vehicles on the environment?**

According to Lovell (2020) recent studies suggest that pollution from the extraction and production of batteries for electric vehicles is equal to or even slightly higher than that from the manufacturing process of gasoline or diesel engines. Chinese battery manufacturers produce up to 60% more $CO_2$ during production than the production of ICE engines, but according to the report, manufacturers in the country could reduce their emissions by up to 66% if they adopted American or European production techniques.

The new study on electric cars sheds light on them (2023) explaining that compact electric vehicles are more climate-friendly than internal combustion engine vehicles only after traveling more than 90,000 kilometers. If only green electricity were used for charging, the threshold at which an electric vehicle becomes cleaner would be reduced to 65,000 kilometers. However, this is not happening in practice.

Noudeng et al. (2022) warn that improper handling of waste batteries can lead to heavy metals polluting the soil by leaching hazardous chemicals. Thus, anthropogenic activities are a key indicator of increasing toxic, hazardous waste in the soil due to waste from production processes and use, which, without proper handling, affect human health through the food chain due to the intake of soil pollutants into plants or food crops.

According to Lakshmi (2023), the production of one ton of lithium requires approximately 2 million tons of water, making battery production an extremely water-intensive practice. Chile, Argentina, and Bolivia have experienced severe water shortages due to intensive lithium extraction. In Chile alone, 65% of the water in the region was used for lithium extraction.

## 10.   CONCLUSION

In conclusion, it can be summarized that electric vehicles have a significant impact on reducing environmental pollution and carbon footprint. However, they are not environmentally neutral as their production is associated with some environmental challenges, such as lithium and other rare metal mining, as well as strain on the electrical grid. Electric cars are believed to be more climate-friendly than internal combustion engine vehicles only after traveling over 90,000 kilometres (The new study on electric cars sheds light on them, 2023).

The government has proposed that only electric vehicles be in use by 2030, but this will not be realized in the vast majority of countries. Electric vehicles can be part of the solution to climate change, but they are not a perfect solution. Much work is still needed to reduce the environmental impact of battery production and to ensure proper handling of waste batteries.

It is important to continue research and development of sustainable solutions and take measures to reduce the negative impacts of electric vehicles on the environment.

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# Corporate Social Responsibility as Business Strategy for Macedonian Companies

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**Keywords:**
CSR;
ESG reporting;
Corporate legal obligations;
Management reporting

**Abstract:** *The purpose of this paper is to make a profound analysis of Corporate Social Responsibility on several aspects of the subject. In recent decades, corporate social responsibility has emerged as a challenge to large companies in their successful organizational performance. Corporate Social Responsibility should be immanent and implemented in companies' strategies. Raising awareness about many problems facing societies is precisely the core of corporate responsibility. The authors will analyse the legal framework that encourages social responsibility, and corporate obligations for issuing social responsibility reports in the Republic of North Macedonia. The paper reaches a conclusion about the influence of the Corporate governance code for companies listed on the Macedonian Exchange (MSE) - adopted in 2021 and the ESG disclosure Guide for companies listed on the MSE about the corporate social responsibility level of awareness. Also, corporate responsibility will be emphasized as a marketing strategy of the companies, contributing to raising the brand to a higher respectable level. For this purpose, a methodology appropriate to the purpose and object of research will be chosen, that is, the method of analysis, abstraction and generalization, will provide general conclusions, as well as comparative analysis, will be used. The conclusion will show which of the four corporate social responsibility approaches: obstructionist, defensive, adaptable, or proactive approach is preferred by the analysed companies.*

## 1. INTRODUCTION

The social responsibility of companies has emerged in recent decades as something immanent to successful companies. The pressure on management to make a profit in the short term, often causes damage to the environment and may expose employees to inhumane working conditions, as well as the consumers to health risks, etc. Not much time passed before the Friedman doctrine was overcome, according to which, the only social responsibility of business is the responsibility to conduct the business following their desires (i.e. owners, shareholders), which generally will be to make as much money as possible while conforming to the basic rules of the society, both those embodied in law and those embodied in ethical custom (Friedman, 1970). Profits of companies are no longer the only satisfaction of managers, intangible impressions among consumers have become a great satisfaction. Since consumer societies have imposed a materialistic attitude towards life, social responsibility is a way out of that trap. The intangible, spiritual values that are forgotten in these societies is actually something that big companies focus on. Material values, profits and unethical behaviour of companies are the past. If a company wants to be competitive in the market, recognizable and valued, then it must also be a socially responsible company. The

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very form through which companies form their credo is through social responsibility. So, Shyshkin et al. (2019) state that corporate social responsibility is the responsible attitude of an enterprise toward its products, staff, consumers and partners, an active social position of the company, which is expressed in the constant maintenance of a balance between the needs of society and the activity of the organization –i.e. harmonious coexistence, interaction and constant dialogue with society in addressing the most pressing social issues. Managers are facing a big challenge in modern work. On the one hand, they should satisfy all stakeholders, and on the other, they should also be responsible to the community by building a recognizable brand. So, as Wan-Jan (2006) states a firm's activities affect many other constituents including the employees, the environment and society. Thus, according to stakeholder theory, a firm has a responsibility towards society, and constituents of society, just as much as it has responsibility towards its shareholders. But it is also important to point out that stakeholder theory does not advocate abandoning shareholders. Instead, shareholders are one important stakeholder group that companies must serve.

The article is organized into 5 sections as follows. The first section is an introduction to the analyzed problem. Section 2 presents the notion of corporate social responsibility (CSR), its nature, theories for CSR, and CSR studies Literature Review at the same time. Section 3 is dedicated to CSR as a marketing strategy. In Section 4, the authors present the legal framework of CSR in the Republic of North Macedonia and the authors' research about the level of incorporation of CSR of companies whose shares are components of the MBI10 index, before the adaptation of Corporate governance code for companies listed on the Macedonian Stock Exchange and ESG disclosure Guide for companies listed on MSE. Section 5 contains the conclusions of the study.

## 2. THEORETICAL BACKGROUND AND LITERATURE REVIEW

Although responsible companies had already existed for more than a century before, the term Corporate Social Responsibility (CSR) was officially coined in 1953 by the American economist Howard Bowen in his publication *Social Responsibilities of the Businessman*. As such, Bowen is often referred to as the father of Corporate Social Responsibility.

In the literature related to this area, there are a large number of definitions from different authors who see corporate social responsibility from different perspectives. This area is of particular interest to many authors because it covers many segments of research, so there are a large number of definitions. There is no unified definition for such a complex area because corporate social responsibility involves many segments and entities. Most definitions of corporate social responsibility describe it as a concept whereby companies integrate social and environmental concerns into their business operations and their interaction with their stakeholders voluntarily. But as Dahlsrud (2006) stated the challenge for business is not so much to define CSR, as it is to understand how CSR is socially constructed in a specific context and how to take this into account when business strategies are developed. According to Rutkowska and Pakulska (2021), the common element in all definitions is a broad category of stakeholders, that is, all those that in any way affect the activity of the company (that is, not only shareholders but also the natural environment or the local community) and taking into account the interests of stakeholders by the socially responsible in their activities and reconciliation of sometimes conflicting interests of individual groups. Kotler and Lee (2011), define CSR as "a commitment to improve community well-being through discretionary business practices and contributions of corporate resources". Carroll (1991) describes "CSR as a multilayered concept that can be differentiated into four interrelated aspects – economic, legal, ethical and philanthropic responsibilities." Corporate social responsibility is the continuing commitment by

businesses to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and society at large (World Business Council for Sustainable Development, 2000). Investment in CSR may multiply companies' competitiveness, and profit, also should increase social reputation, the number of loyal consumers or users of the services that companies provide, etc. Being socially responsible means not only fulfilling legal expectations but also going beyond compliance and investing "more" into human capital, the environment, and relations with stakeholders (Commission of the European Communities, 2001). In transition economies, CSR is most commonly associated with philanthropy or charity, i.e. through corporate social investment in education, health, sports development, the environment, and other community service (Ristovska, 2010). According to Jones and George (2016), there are four different approaches when we are analysing the social responsibility of the companies. At the low end of the range is an obstructionist approach, in which companies and their managers choose not to behave in a socially responsible way. Instead, they behave unethically and often illegally and do all they can to prevent knowledge of their behaviour from reaching other organizational stakeholders and society at large. A defensive approach indicates that companies and managers stay within the law and abide strictly by legal requirements but make no attempt to exercise social responsibility beyond what the law dictates; thus, they can and often do act unethically. An accommodative approach acknowledges the need to support social responsibility and they behave legally and ethically, and they try to balance the interests of different stakeholders so the claims of stockholders are seen in relation to the claims of other stakeholders. Companies and managers taking a proactive approach actively embrace the need to behave in socially responsible ways. Proactive companies are often at the forefront of campaigns for causes such as a pollution-free environment; recycling and conservation of resources; the minimization or elimination of the use of animals in drug and cosmetics testing; and the reduction of crime, illiteracy, and poverty.



**Figure 1.** The four different approaches to companies' CSR
**Source:** DAIMSR, n.d.

Managers are facing a big challenge in modern work. On the one hand, they should satisfy all stakeholders and consumers, and on the other hand, they should also be responsible to the community by building a recognizable brand. At the same time, they have to balance all the pressures from the parties involved. Carroll (1991), the creator of Carroll's CSR Pyramid, adopted a four-part definition of CSR: To be socially responsible a business must meet economic, legal, ethical, and philanthropic expectations given by society at a given point in time. Economics is required and the company must be profitable, maximize sales, minimize costs, etc. Legal is required because of obeying laws and regulations. Ethics is expected: do what is right, fair and correct. Philanthropic is desired and expected to be a good corporate citizen. So, according to her, corporate social responsibility involves the conduct of a business so that it is economically profitable, law-abiding, ethical and socially supportive.

Corporate social responsibility as a modern phenomenon in the Republic of North Macedonia for the first time was incorporated in 2008 as a policy document for stimulating CSR, in the National

CSR Agenda for 2008-2012. Before that UNDP and European Commission sponsored a baseline study on CSR in North Macedonia. The next comprehensive research about CSR in North Macedonia was published in 2013 in the Macedonian National Review Report on CSR into the frame of EU funded project (SCR for all, 2013). The main objective of some Macedonian researchers about CSR aspects was focused on the banking sector (Levkov & Palamidovska-Sterjadovska, 2019; Trpeska et al., 2021). Veljanoska (2021) researched some of the CSR practices of the most successful companies in the Republic of North Macedonia. The fact that the Corporate governance code for companies listed on the Macedonian stock exchange was adopted in October 2021 and the ESG disclosure Guide for companies listed on MSE in 2022, implies that there is a literature and research gap about the influence of these two acts on increasing CSR and ESG awareness of Macedonian companies.

## 3. CORPORATE SOCIAL RESPONSIBILITY AS A MARKETING STRATEGY

According to Adegbola (2014), marketing is vital to the success of a business organization. Corporate organizations, be it service-oriented or product-oriented, must design appropriate strategies to market their products and services. Successful marketing results in stronger products, happier and loyal customers and bigger profits. As Sanclemente-Téllez (2017) explains when marketing scholars first started to discuss aspects related to CSR within the discipline, they initially focused on broadening marketing concepts and then analysed business social functions to currently focus on strategic ways to apply the construct, which in most cases have only focused on major company stakeholders: customers and consumers and the channels of distribution. When being socially responsible, companies must integrate different strategies in their everyday activities. The companies need to state their socially responsible strategy to be clearly stated, offering visibility not just to every employee, but also to every consumer. Corporate social responsibility strategy as a concept has an impact on society and the environment. Consumers are the ones who value such companies and give their trust expecting something in return.

According to Fernando (2024), there are four ways to use CSR in marketing strategies:
1. *Causa related marketing. P*artnering with nonprofit organizations and giving part of the company's profit to some social cause. This should be stated in the company's mission and vision statement in order to show care for society and some specific cause.
2. *Content marketing* should involve such promotions, and provide visibility for those events and initiatives to a wider population.
3. Production of eco-friendly products, packages and other actions that reduce waste or use reusable energy. Such actions will not only attract environmentally conscious consumers but will promote companies' environmentally friendly practices.
4. Practice voluntary work as a part of employee voluntary programs. This should also be promoted in social media stories and stated in the company's mission and vision.

## 4. LEGAL FRAMEWORK IN THE REPUBLIC OF NORTH MACEDONIA

Law on trade companies was adopted in 2004 in the Republic of North Macedonia, and it has been amended more than thirty times in the last 20 years, but it does not include any articles about corporate social responsibilities. Art. 384 (7) of the Law on Trade Companies prescribes what the annual report of the company should contain. The annual report should be examined and adopted at the annual assembly. According to the legislator "in the annual report on the operations of the company for the previous business year, the management body shall be obliged to objectively present and explain the main factors and circumstances which influenced determining the operations, including

any changes in the environment in which the company operates, the response of the company to such changes and their impact, the investment policy for maintenance and support of the successfulness of the operations of the company, including the dividend policy etc." This article does not seem to include precise obligations and responsibilities for the management body to explain in detail the social responsibility activities of the companies in the previous year. Further in the next article 384-a, adopted in December 2020 with the amendment of the Law on trade companies, the legislator obliged the management body of the company listed on the Macedonian Stock Exchange in a separate part of the annual report on the company's operations, to state on the application of the Corporate governance code for companies listed on the Macedonian Stock Exchange.

The purpose of the Corporate governance code for companies listed on the Macedonian Stock Exchange, adopted in 2021, is to promote effective corporate governance and transparency of companies listed on the Macedonian Stock Exchange. The implementation of this Code by the companies listed on the Macedonian Stock Exchange may improve the openness of the companies to the public, may contribute to the proper balance between management bodies and shareholders, overcome information asymmetry between management and other stakeholders, further increasing company's management awareness for their social impact, thus making companies more attractive for other shareholders future investments in shares. The Code influence is expected to have a "win-win" effect in the way that the company will increase its reputation and estimated value, the shareholders will have more information about the way their capital is operated by the management body of the company, and the community will gain more benefits by increasing the social responsibility of the company. The companies that are not listed on the Macedonian Stock may use the Code's recommendations and suggestions as guidelines for complying with the law and gaining ethically sound and responsible behaviour.

According to the Corporate governance code for companies listed on the Macedonian Stock Exchange, adopted in October 2021, these companies have an obligation to fill in and publish the Governance Information Questionnaire besides the annual report. This Questionnaire contains one part dedicated to stakeholders, sustainability and social issues. Following the proposals and recommendations of the Governance Information Questionnaire, the Annual report of the company shall report on issues related to environmental and social issues based on the principle of transparency and in accordance with relevant legal requirements and good international practice. The Questionnaire even refers to precise section names and page numbers in the Report. While answering the Questionnaire the companies should apply the approach known as "comply or explain". That means that companies are not obliged to meet the standards set out in the Code, but they need to have good reasons and explanations in order to justify their Code's deviation to shareholders.

In order to follow the ESG (environmental, social and governance) Agenda, as a new approach to company policies, the Macedonian Stock Exchange in 2022 adopted the ESG disclosure Guide for companies listed on MSE. The ESG disclosure guide follows the European Green Deal and the accompanying Action plan: Financing sustainable growth, including recommendations of the Corporate Sustainability Reporting Directive (CSRD), the Regulation on the establishment of a framework to facilitate sustainable investment and the Sustainability Finance Disclosure Regulation. The ESG disclosure in North Macedonia is not mandatory for companies listed on the stock but is still based on the company's willingness to fill in and publish. This is in contrast with the EU regulation where ESG disclosure is required. CSRD expands the scope of indicators that should be reported regarding the economic, social and ecological dimensions of sustainability of the business. In the first cycle, after 1st of January 2024, CSRD must be applied by all large European

trading companies with over 500 employees, and after 1<sup>st</sup> of January 2026 as well by medium and small trading companies (SMEs). The estimation is that CSRD will lead to a significant increase in the number of companies that will have to publish sustainability reports, approximately 11,700 to approximately 49,000 companies and groups across the Union (Odobaša & Marošević, 2023). Macedonian companies that will voluntarily comply with ESG reporting practices will have a better competitive predisposition on international markets and will be more attractive to EU and other international investors (Redqueen, 2022). Bearing in mind that the first version of the Macedonian proposal of the Law on trade companies does not include companies' ESG reporting obligations, it may be concluded that the proposal is not harmonized with CSRD.

**Table 1.** CSR and ESG reporting in MBI10 companies in the Republic of North Macedonia

| Company | Industry type | Annual reports on the operations of the companies in 2019 | Annual reports on the operations of the companies in 2020 | Annual reports on the operations of the companies in 2023 or 2022 or ESG reports |
|---|---|---|---|---|
| **Komercijalna banka AD Skopje** | Banking | CSR section of the Annual report about donations, corporate voluntarism, ethical management-education, environmental issues | CSR section of the Annual report. Clients' needs orientation, employee rights, corporate voluntarism, ethical management-education, environment issues, donations | CSR and ESG practices are incorporated in the annual report for 2023 which explains all CSR, environment, social and governance aspects of the company's operation in the last year (2023). |
| **Makpetrol AD Skopje** | Petroleum Products and Gas | Missing section about CSR. Segments in the separate financial statements for donations as an expenditure (without precise explanations). | Missing section about CSR. Segments in the separate financial statements for donations as an expenditure (without precise explanations). | Special sections of the annual report about Environment and social interest and Local community (implementation of new ISO standards, environmental protection, donations) (2022). |
| **Granit Skopje AD** | Construction | Corporate responsibility section about organization of some events and donations. | Corporate responsibility section about donations in the healthcare system, donations for vulnerable children. | Corporate responsibility section about implementation of environment and other ISO standards, donations for vulnerable children, support of research (2022). |
| **Alkaloid AD Skopje** | Pharmacy | Missing special section about CSR, only some segments in the separate financial statements for donations as an expenditure. | Missing special section about CSR. Segments of the report state information about environmental protection and foundation's fund, sponsorship and donations in the culture, education, healthcare institutions, science. Donated nearly EUR 1.2 million in 2020. | Adopted special ESG report where all ESG aspects are explained in detail incorporating a Plan with short-term goals for all ESG aspects Alkaloid is elected by the media in North Macedonia as the most transparent joint stock company listed on the MSE in 2023 (2023). |
| **Makedonski Telekom AD Skopje** | Telecommunication | Missing section about CSR. The section titled "Research and Development" contains information about some socially responsible actions. | Missing section about CSR. The section titled" Research and Development" contains information about some socially responsible actions. Segments in the separate financial statements for donations as an expenditure (without precise explanations). | Special section of the Annual report dedicated to environment and CSR (Environment, Investments in the network of the future, Sustainable operation, Social and special tariffs, etc.) (2022). |

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|---|---|---|---|---|
| **NLB Banka AD Skopje** | Banking | Missing section about CSR. | Special section of the Annual report is dedicated to CSR, donations in the healthcare system, education and science, sport and society. | CSR and ESG practices are incorporated in the annual report for 2023 which explains all CSR, environmental and social aspects of the company's operation (2022). |
| **TTK Banka AD Skopje** | Banking | Special section of the Annual report dedicated to CSR, donations and sponsorship in sport, education, culture, art, science and ethical governance. | Special section of the Annual report dedicated to CSR, donations and sponsorship in sport, education, culture, art, science. | In 2023 the company's management incorporated the ESG report as a part of the Annual report where all ESG aspects are explained in detail. |
| **UNI Banka AD Скопje** | Banking | Special section of the Annual report dedicated to corporate governance but not all CSR aspects are included. | Special section of the Annual report dedicated to corporate governance but not all CSR aspects are included. | Special sections of the annual report about CSR and ESG (environmental protection, donations in sports, education and science (2022). |
| **Stopanska Banka AD Skopje** | Banking | Special section of the Annual report dedicated to CSR, donations in the healthcare system, sport, events. | Special section of the Annual report dedicated to CSR, donations in the healthcare system, sport, events. | Special section of the Annual report dedicated to CSR (donations in the healthcare system, sport, events, ecology) and section about Gender equality and inclusiveness (2022). |
| **Makedonija turist AD Skopje** | Tourism and hospitality | Missing section about CSR. | Missing section about CSR. Adopted Corporate governance code. | Missing section about CSR. Adopted Corporate governance code (2022). |

**Source:** Own research based on reports published on MSC, SEInet or companies' web pages

According to the data publicly available in annual reports for the operations of MBI10 companies listed on MSE, published in 2020 and 2023 or 2022 (depending on the fact which annual report the companies have published last, till the end of submitting the papers), the authors will provide an analysis on the situation in the practices; how Corporate governance code for companies listed on the Macedonian stock exchange (adopted in 2021) and ESG disclosure Guide for companies listed on MSE (adopted in 2022) have influenced the upgrading of social responsibility companies' awareness.

The analysed annual reports of selected MBI 10 Macedonian companies listed on MSE, show that these companies are more dedicated to fulfilling or more transparent exposure of CSR and ESG aspects of their work after accepting the Corporate governance code for companies listed on the MSE and voluntary incorporation of ESG disclosure Guide for companies listed on MSE. The analysed companies are accepting the adaptive and proactive approach by fulfilling the legal requirements. This doesn't indicate that these companies weren't socially responsible before 2021, but it can be concluded that CSR and ESG aspects were more emphasized in the annual reports for 2022 or 2023. The growing attention to ESG reporting, the adaptation of EU requirements, implementation of some of them in the Macedonian legislation to a certain extent and also the implementation of European standards by MSE acts, have become a trigger for a skyrocketing number of companies that published ESG reports or supplementing annual reports with ESG and CSR issues. Oliinyk et al. (2021) came to a similar conclusion about the situation of non-financial reporting on Ukraine territory.

## 5. FUTURE RESEARCH DIRECTIONS

CSR awareness in SMEs which are dominant in Macedonia's economy (CSRforAll, 2013) is significantly different. The fact that these companies still do not have an obligation to use Corporate governance code or ESG disclosure, is unfavorable for implementing CSR and ESG aspect as inseparable part of their business strategy. The emerging trends in the EU show that even SMEs should adapt their operations in the direction of implementing ESG and CSR practices. It is necessary to correct the omission of these obligations of SMEs in the manner of EU legislation. After that, very comprehensive and demanding research may be done on the CSR and ESG aspects of all Macedonian companies, regardless of whether they are listed on the stock exchange or not.

## 6. CONCLUSION

In contemporary business law, there is a trend of expanding the issues that a socially responsible company should treat and undertake precautions. Notably, Macedonian companies should follow this trend if they want to be more attractive to foreign investors. We suggest that the legislator should take precautions and cleverly implement CSRD at the same time while the process of adopting the new Law on trade companies is not finished yet.

The authors made a detailed analysis of the reports of the Macedonian companies which are components of the MBI10 index. Using the method of comparative analysis, the authors reached the following conclusions: The analysed companies have implemented all legal regulations and codes regarding corporate responsibility, according to which they should work. It can be concluded that companies behave adaptively and proactively in terms of corporate social responsibility; Company managers are committed to implementing corporate social responsibility in the company's strategies, in order to contribute to society, the health system, sports, marginalized groups, etc. In recent years, companies have developed a sense of awareness not only of the consumers but also of the entire community in which they operate. The adaptation of a Corporate governance code for companies listed on the MSE and voluntary incorporation of an ESG disclosure Guide for companies listed on the MSE can be considered to have a dominant influence on Macedonian companies to accept social responsibility as an imminent business strategy in this contemporary environment. The level of acceptance of CSR and ESG disclosure in the next few years would be under the European level since the Macedonian legislator does not yet prescribe a mandatory release of ESG disclosure. On the other hand, fostering a culture of socially responsible or "reputable business person" concepts must be accepted without any resistance as inevitable content of every business in contemporary society. In the times when the legal background for CSR is not so developed in North Macedonia, the meeting of ethical and philanthropic expectations of businesses must come first.

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# Enhancing Credibility and Effectiveness of Certification Body Audits: A Comprehensive Examination

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**Abstract:** *Valid organizational conformity to standards is one of the key reasons why Certification Body (CB) audits should be conducted. Nonetheless, their credibility and effectiveness are dubious, thus necessitating an in-depth analysis of factors determining the perception of the audit. This research examines CB audits by analyzing how client appeals, audit team dynamics, consultant roles, threats to impartiality, and improvement opportunities can enhance integrity and effectiveness during certification audit exercises. It reveals the importance of examining client appeals mechanism for resolving discrepancies; recommends diverse expertise as shown through audit team dynamics; necessitates a clear distinction between roles and adherence to professional guidelines; suggests several threats to impartiality within the process of auditing while calling for risk control measures; indicates that collaborative approach will strengthen trustworthiness and efficiency in audits. Lastly, this study provides insights into CB audit complexities with actionable recommendations for enhancing the fidelity and efficiency of certification processes.*

## 1. INTRODUCTION

By being central to guaranteeing quality, safety, and compliance with standards, the audits by Certification Bodies (CB) are vital for organizational compliance. Nevertheless, despite playing a significant role, these audits have continued to doubt their effectiveness and credibility. In this time when everything is looked into keenly and accountability is demanded, it's high time that these issues were addressed to ensure that certification processes remain credible.

This paper explains the complexities of CB audits by exploring the numerous factors influencing how they are perceived as reliable and valuable. By conducting a comprehensive inquiry covering customer appeals, audit team composition, consultant involvement, risks to independence, and suggestions for improvement, this study aims to highlight the intricacies of the certification process. The authors argue that through intensive examination and critical questioning, a better understanding of how stakeholders, conventions, and practices shape standards within the field of certification can be achieved.

In an era marked by changing consumer expectations, new technology, and evolving regulatory frameworks, there is a need for robust and dependable certification procedures. However, even as concerns about audit quality, transparency, or objectivity continue to emerge, there is a need to confront these challenges directly to ensure continuous improvement. Therefore, this research intends to clarify some of the intricacies of CB audits while identifying specific areas for improvement that can help make them more robust and transparent. Our focus is on enhancing trust in certification processes through collaboration, engagement of stakeholders, and adherence to best practices.

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## 2. LITERATURE REVIEW

Accredited certification is overseen by national accreditation bodies (that are, in turn, overseen by the International Accreditation Forum (IAF)). Calder (2023) states that these bodies certify the competence of organizations that offer certification against national or international standards (usually called 'certification bodies'), ensuring that their assessments are carried out in line with internationally recognized requirements. In response to the demands of ethically minded consumers, businesses are increasingly embracing certification programs to designate their goods, products, and services as "sustainable." The legitimacy of these certification programs hinges on their criteria and the extent to which they are enforced. The efficiency and neutrality of the assessment mechanisms employed to gauge corporate adherence to these standards are crucial. Some concerned parties, including Human Rights Watch (2022), have raised issues regarding the thoroughness and depth of third-party social audits of producer companies to ensure compliance with human rights standards. Occasionally, these audits may inadvertently minimize human rights violations and unsustainable practices, partly due to collusion between auditors and the companies they evaluate.

A first-party audit is an audit of an organization's practices that that organization carries out. A partner organization carries out a second-party audit, usually under a commercial relationship of some description. Calder (2013) states that an independent third party performs a third-party audit, such as a certification body or external auditor. MacInnes (2023) concludes that if these programs cannot transparently guarantee that products bearing their labels are dependable and independently verified, markets, consumers, and regulators may lose faith in "sustainability certifications" and the programs endorsing them. Rebuilding trust, once lost, is a formidable challenge. It is evident that markets are becoming skeptical of such programs and are exploring alternative methods to exclude products associated with unacceptable practices, ranging from bans and boycotts to substitutions and new regulations mandating comprehensive human rights and environmental due diligence for importers, investors, manufacturers, and traders. Several certification programs acknowledge the need for enhancement in this area and are reassessing their assurance mechanisms. This evaluation outlines why social audits often fall short of maintaining standards and offers potential remedies to restore confidence in the auditing system. We present instances illustrating systemic misconduct and the lack of recourse evident in various certification programs, underscoring the existing deficiencies in the social audit procedure.

Enforcing social standards within certification schemes presents obstacles for the (CBs) in evaluating corporate adherence. These obstacles arise from various factors, including a lack of auditor autonomy, the use of relatively lax social criteria standards, scheduled visits for supervised audits, inadequate on-the-ground verification, excessive reliance on written policies over actual implementation, opacity in processes, insufficient resources and guidance for auditors, and limited oversight of CBs by Accreditation Bodies. The existing market-driven certification structure fosters financial interdependence between CBs and the companies they evaluate. This system incentivizes auditors to maintain positive relationships with the companies they audit while providing limited motivation to identify shortcomings. In countries with poor governance, this setup can lead to dishonest reporting and conspiracy culture, potentially undermining the credibility of certification schemes. One possible solution involves establishing a clear financial separation between CBs and the companies that hire them. Research indicates that auditors and CBs who do not effectively assess company compliance with certification standards often go unpunished, even when substantial evidence points to violations of certification scheme standards. The Environmental Investigation Agency (2015) states that this insufficient accountability contributes to a culture of impunity.

The Environmental Investigation Agency (2015) highlights that it is common practice in certification schemes for CBs—the consultants tasked with assessing an entity's compliance against a standard—to be paid directly by the clients they are auditing. Critics argue this creates a system of financial dependence. According to MacInnes (2023), the certified organizations are usually responsible for commissioning these third-party audits and bear the costs.

The increasing number of cybercriminal incidents has raised concerns about the drawbacks of technological growth and the growing dependence on technology. This has led to questions about the response of external auditors to cybersecurity-attacked companies (Bao Ngo & Tick, 2021). A study involving 100 global companies has been conducted. It states a positive relationship between audit fees and breaches, suggesting auditors find more risks and exert more effort when auditing these companies. The study is designed in the context of the growing number of criminal cyber incidents and the introduction of rules and laws to protect technology users from cybercrimes. The research supports regulations and ordinances concerning external auditors' role in the terrible cybercrime context. It provides new perspectives on the relationship between external auditors' concerns and cybersecurity risks.)

Slapničar et al. (2022) analyzed the effectiveness of internal audits in cybersecurity using a Cybersecurity Audit Index consisting of planning, performing, and reporting dimensions. The study hypothesizes that effectiveness is related to cyber risk management maturity positively and to the probability of a successful cyber-attack negatively. A survey was conducted with auditors and Chief Audit Executives from various countries and industries. The Cybersecurity Audit Index scores vary negatively, with a mean of 58 on a scale from 0 to 100. While planning and performing phases are strongly correlated, they are less strongly related to reporting concerning cyber risk management effectiveness to the Board of Directors.

Lee and Levine (2020) investigated the impact of disclosing the audit engagement partner's identity through Form AP on individual and partnership incentives and overall audit quality. The model accounts for the influence of Form AP disclosure on individual partners' efforts and the partnership's internal quality control system. The paper finds that Form AP disclosure increases individual partners' incentives to provide high-quality audits. Still, it may simultaneously decrease the partnership's incentives to maintain sound internal quality control systems, which can ultimately lead to a net degradation in audit quality. The level of external audit oversight is critical in determining whether Form AP disclosure enhances audit quality. Additionally, the research shows that the expected profits to the partnership are weakly greater with Form AP disclosure when certain conditions related to the cost of internal quality control and the level of partner identification following the disclosure are met. This suggests that the effects of Form AP disclosure on the expected profits of the partnership are contingent on various factors, including the level of partner identification and the cost of internal quality control.

Audit quality is crucial for an audit firm's success, but factors such as employee workloads, turnover, and team dynamics can impact it. Partner characteristics have been studied, but the findings are inconclusive. Most audit engagement hours are incurred by non-partners, suggesting that audit teams may be an appropriate unit of analysis. Christensen et al. (2021) examined how audit team workloads and staffing decisions affect audit quality, audit hours, and fees. Insufficient resource constraints limit the number of team members assigned to each audit and the time each member is assigned to a specific client. This can lead to heavier workloads during year-end fieldwork, leading to employee burnout and negatively impacting job performance. It was concluded that heavier team workloads are associated with lower quality audits, particularly when team members have lower performance ratings

or total workloads exceeding 60 hours per week. It has been proved that audit quality on the primary client suffers when team members spend more time during the busy season on other concurrent clients. More excellent year-over-year team staffing continuity is associated with improved audit quality, efficiency, and profitability.

Akther and Xu (2021) conducted a study investigating the factors that make an audit more credible and confident. Their insights are based on analyzing the data collected through a questionnaire survey that 254 institutional investors answered. Their results indicate two influential predictors that increase an audit's credibility and confidence: perceived auditor independence and improved auditory communication. The study reveals that perceived auditor independence and improved communication are key predictors of enhanced credibility and trust. Factors like audit-client affiliation, mandatory rotation, and influential committees contribute to perceived independence. Improved auditor communication enhances audit reports and education, increasing audit confidence.

ISO 9001 is an international standard outlining the quality management system (QMS) criteria. It helps firms consistently produce and deliver products and services, organizing operational processes and continually improving them. ISO 9001 certification is the official account for firms that meet all requirements after being audited by third-party auditors. It communicates to customers that firms have received independent third-party assurance and symbolizes their commitment to sound QMS across all critical processes, facilities, equipment, and people. It is also used for supplier identification and selection. Prajogo et al. (2020) explored the effects on the operational and market-oriented outcomes of the ISO 9001 implementation of external auditors and CBs. Address the relationship between external link auditors, certification bodies, and the operational and market-oriented outcomes from the ISO 9001 certification. They study how the different roles of external auditors and CBs impact the outcomes achieved from the quality of standard implementation. Their work shows that the quality of external auditors impacts the audit's operational outcomes, while the certification bodies' reputation affects market-oriented outcomes.

## 3. METHODOLOGY

The methodology employed by the authors involved an exacting approach, which started with a detailed examination of existing literature on audit quality from certification bodies. This involved reviewing scholarly articles, industry reports, and regulatory documents to build a robust theoretical foundation. The authors used specific keywords in research databases to help them locate appropriate literature, ensuring that relevant material was reviewed extensively. Subsequently, they meticulously selected review papers based on the research questions and conclusions of the papers to ensure relevant sources were included that were reliable enough. Thus, this approach provided a holistic comprehension of the subject matter for synthesizing relevant ideas and making well-informed conclusions.

## 4. RESULTS AND DISCUSSIONS

### 4.1. Analysis of the "Client Appeals" Factor

Client appeals are vital in certification because they enable organizations to iron out audit inconsistencies. However, misuse can compromise the standing and effectiveness of audits. Hesitations from such factors as fear of retribution, perception of intricacy, and ruining relationships with certifying bodies may hinder appeals. This study explains the challenges in client

appeal by arguing that transparency, accountability, and proactive participation foster a culture of openness and collaboration. The shift towards proactively involving stakeholders in addressing disparities during audit exercises and ensuring fair resolutions can ensure the integrity and reliability of certification audits. By promoting openness and integrity in the appeals process, stakeholders can improve trust and confidence in certification by working together.

## 4.2. Analysis of the "Audit Team Composition"

This study explores the importance of audit team composition, client objections, and mechanisms to maintain impartiality within audit teams. Diversity, expertise, and transparency are vital to enhancing audit professionalism and integrity. CBs can increase the robustness and completeness of audit procedures by assembling teams with diverse perspectives and competencies. Transparency in team selection processes and clear communication of members' qualifications foster trust and credibility among stakeholders, enhancing confidence in audit outcomes.

Addressing customer objections is essential to maintaining audit teams' trustworthiness and objectivity. It ensures equal audits by preventing potential conflicts of interest. Clients should be able to raise issues on team selection, while organizations must engage clients at critical levels for trustworthy relationships.

CBs should consider diversity, specialization, and open selections to enhance professional ethics and competence. This will improve auditors' behavior, boost stakeholders' confidence, and improve organizational performance. Therefore, stakeholders should be more committed to enforcement programs to improve the organization's performance through assurance standards that apply across all divisions.

## 4.3. Analysis of the "Role of Consultants" in an Audit

The certification process requires consultants to participate, providing expertise and advice to organizations striving for conformity with standards. Yet, this may lead to moral dilemmas and ethical issues concerning auditors' participation. Nevertheless, consultants must balance advising clients and being neutral during auditing. Regarding objectivity and integrity, Conflicts of interest can emerge when consultants act as advisors while still auditing the same organizations. This study advocates for increased transparency and compliance with ethics regarding consultant audits. Additionally, the paper scrutinizes the issue of role clarity and conflict resolution frameworks that can aid in managing risks during certification audits and prevent them from undermining credibility. On the other hand, engagement between consultants, CBs, and clients promotes trustworthiness, thus creating an accountable atmosphere among these stakeholders, which is essential in maintaining certification integrity. The complexities inherent in consultant involvement in audits require a culture of openness, professionalism, and commitment to professional standards, all aimed at promoting organizational compliance with quality assurance needs.

## 4.4. Avenues for Improvement

Amidst the complexities inherent in CB audits, the pursuit of continuous improvement emerges as a paramount imperative. This section delves into various avenues to enhance the credibility and effectiveness of audits, thereby fortifying the foundation of organizational compliance and quality

assurance. By advocating for collaborative efforts among stakeholders and a steadfast commitment to best practices, this study seeks to propel the certification process toward greater credibility and efficacy. One avenue for improvement lies in refining audit practices that align with evolving industry standards and regulatory requirements. By staying abreast of emerging trends and methodologies, CBs can ensure the relevance and robustness of audit procedures, thereby enhancing their efficacy in evaluating organizational compliance. Additionally, fostering an innovation and experimentation culture within audit processes can stimulate continuous learning and improvement, driving toward more effective outcomes.

Another central area that needs to be improved is the development of Auditor Competence. This can be achieved by investing in holistic training programs, continuous professional development, and certification paths, which would help ensure that auditors are more knowledgeable, skilled, and efficient. In this way, CBs will improve the quality and reliability of audit outcomes by ensuring that auditors have all it takes to navigate complex audit scenarios and make sound decisions.

Moreover, transparency and accountability are vital to enhancing stakeholder trust and confidence during certification. Getting feedback from clients, auditors, or other stakeholders would give significant insights into where efforts must be focused to improve audit practices. In addition, encouraging open communication channels and a declaration of audit findings can also enhance credibility and integrity regarding the certification process.

Ultimately, a collective effort among stakeholders toward a collaborative approach based on best practices will drive the certification process toward greater credibility and effectiveness. Therefore, through their commitment to excellence and innovation, CBs should uphold the highest quality assurance standards alongside organizational compliance, establishing trust in certification outcomes.

## 5. CONCLUSION

To sum up, certification body audits need to be credible and effective. Hence, there is a need for all concerned to make efforts, and many things should be improved in the system. This will go a long way in addressing common concerns, advocating for transparency, and creating a culture of accountability that can collectively enhance the integrity and dependability of certification processes. The ultimate credibility of CB audits depends on clients', auditors', and CBs' commitment to maintaining high standards and continuous improvement and excellence. Organizations face an increasingly complex regulatory environment while they strive to keep pace with changing industry standards, making it more critical than ever to have robust, dependable certification processes. Through an inclusive approach encompassing shared practices within an organization sustained by best practices, stakeholders can maintain high-quality assurance standards while ensuring organizational compliance. As such, stakeholders are recommended to undertake continuous improvement to meet dynamic stakeholder needs and instill trust in outcomes from future certifications through CAs' dialogue mechanisms. In conclusion, everyone who plays any role in the auditing profession has a part in making sure that CB audits remain credible and compelling. By fostering a transparent and accountable culture and continuous improvement, stakeholders can ensure that certification processes remain a cornerstone of organizational excellence and regulatory compliance. As we look towards the future, let us remain steadfast in our commitment to upholding rigorous standards and advancing the overarching goals of organizational compliance and quality assurance.

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# AI-Led Attacks in the Field of Business

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**Keywords:**
Artificial intelligence;
Business security strategy;
Cybersecurity

**Abstract:** *The rapid advancement of technology and the digital transformation of the business environment have introduced new vulnerabilities, making cybersecurity a paramount concern for companies worldwide. This paper explores the evolving nature of cyber threats, with a particular focus on the rise of artificial intelligence (AI) in facilitating cyberattacks. Utilizing a combination of theoretical analysis, including the PESTEL framework, and empirical data from a survey of Information and Communication Technology (ICT) company leaders in Hungary, this study underscores the dual role of AI in cybersecurity. AI not only enhances the capabilities of cyber defense mechanisms but also significantly amplifies the potential and sophistication of cyberattacks. The research findings indicate a noticeable increase in AI-led cyberattacks, which are characterized by their complexity and the challenge they pose to traditional cybersecurity defenses. This trend necessitates a strategic shift in how businesses approach their security strategies, integrating advanced technological solutions and adopting a proactive stance toward identifying and mitigating emerging threats. The paper concludes with recommendations for future research directions, emphasizing the need for continuous adaptation and the integration of cybersecurity considerations into the broader strategic planning process of companies.*

## 1. INTRODUCTION

The primary objective for actors in the business world is to ensure the seamless continuation of their business activities within the framework of the information society. Achieving this requires establishing security throughout the entire life cycle of their processes. Given the complexity of contemporary security challenges, businesses must prioritize security as a core task. This necessity is underscored by the Copenhagen School's sectoral identification of security threats, which emphasizes the importance of effectively managing social threats in the business sector (Buzan, 2000).

Technological advancements and digitalization have introduced their own set of risks, with cybersecurity emerging as the most significant threat to corporations today (Burton & Lain, 2020). Companies, recognizing these issues, have made progress in addressing cybersecurity concerns. However, despite advancements in identifying the dangers of digitalization, the evolution has not ceased. The emergence of artificial intelligence represents a new twist in the spectrum of security threats facing businesses. Furthermore, technology does not progress linearly but exponentially, as indicated by Moore's Law, which observes that the number of transistors in chips approximately doubles every two years (Roser et al., 2024).

The rapid changes in the security landscape require that corporate management actively engage in identifying threats and devising novel solutions.

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## 2.   ARTIFICIAL INTELLIGENCE-LED ATTACKS IN THE BUSINESS SECTOR

The security principles of a company in the 21st century require it to be innovative, dynamic, and resilient in order to survive (Howard, 2023). The more a company can establish the conditions for operation based on these principles, the more capable it becomes of generating long-term value, even in the face of unforeseeable risks. These values can only be produced through continuous work, founded on a deep, future-proof strategy.

The objective of this short paper is to be the first to enumerate the attacks that are now occurring daily in the lives of businesses (Luo, 2022).

In 2023, Europol examined the emerging challenges of AI in crime, which led to the clarification of the following forms of attacks (Malicious Uses and Abuses of Artificial Intelligence, 2023)

**AI-Enhanced Malicious Software.** In the evolving landscape of cybersecurity, Artificial Intelligence (AI) plays a dual role. While it fortifies defensive mechanisms, it also significantly amplifies traditional cyber-attacks. A notorious application of AI involves exploiting vulnerabilities in both conventional and AI-based cybersecurity systems. By identifying and exploiting these weaknesses, AI-driven malware can infiltrate systems through uncovered backdoors, causing substantial damage.

**AI-Assisted Password Theft.** AI models, particularly Generative Adversarial Networks (GANs), have demonstrated an alarming proficiency in deducing user passwords. By analyzing datasets from password leaks and employing statistical models of password composition, these AI systems can predict user passwords with high accuracy. This capability poses a severe threat to personal and organizational data security.

**Attacks on Cloud Services.** The proliferation of cloud services necessitates robust security measures to protect user data. However, AI-based attacks present a unique challenge. As (Aslan et al., 2021) highlight, cloud service providers must now evolve their defensive strategies to counter these sophisticated AI threats. A security breach in such environments could compromise the data of millions of users.

**Misuse of Smart Assistants.** The practice of 'jailbreaking' smart assistants exposes them to misuse. Hackers and users exploit vulnerabilities in chatbot systems, circumventing cybersecurity protocols. This allows the injection of unregulated or harmful content, manipulating these assistants to disseminate illegal or unethical information, as outlined by Mascellino (2023).

**AI-Powered CAPTCHA Breaking.** Text-based CAPTCHAs, designed to prevent botnet attacks, are losing effectiveness with the advancement of AI. (Wang et al., 2023) report on the rapid development of AI techniques capable of solving CAPTCHAs, indicating a need for more advanced anti-bot measures.

**Disguised Bot Activities on Social Platforms.** AI-supported bots are capable of mimicking human behavior to deceive bot detection systems on social media platforms. This capability benefits malicious actors who exploit these bots for various purposes, including artificially inflating follower or download counts for monetization. Moreover, these botnets are also adept at conducting Distributed Denial of Service (DDoS) attacks, spam distribution, and data theft.

The role of AI is pivotal in coordinating and optimizing these botnet activities, making the network more robust and elusive.

**Fraud in Online Gaming.** The esports industry, with its rapid growth and increasing financial stakes, has become a prime target for cybercriminals. Their objectives range from acquiring prize money to using esports for money laundering activities.

**AI-Supported Hacking.** AI is rewriting the rules for hackers. Ransomware attacks have undergone a significant transformation with AI support. Hackers now use AI to encrypt files and demand ransoms for decryption. AI aids them not only in evading virus detection and protection tools but also in identifying the most valuable files for encryption, thus facilitating more effective and damaging illegal activities.

## 3. CYBER ATTACKS IN EVERYDAY LIFE (EXPERIENCES OF SMALL BUSINESS LEADERS)

After identifying the digital challenges, the hypothesis of the short paper is to substantiate that a strategic shift in handling security issues in the economic sector is justified because AI represents risks that cannot be managed with old risk management methods, neither in the analog nor in the digital world methods.

One method of confirming a hypothesis involved conducting interviews with leaders of 10 Hungarian small businesses specializing in ICT (Information and Communication Technology) operations and development. The aim was to understand what types of cyberattacks these professionals encounter during their business activities. The leaders participating in the study are highly knowledgeable in ICT, dealing professionally with digitalized solutions.

Given their companies' activities and their own professional qualifications, these leaders possess an advanced understanding and application of digital solutions.

The business leaders responded to the following four questions (with a simple "yes or no" answer and after that during an interview):
1. Has the company been the target of a cyberattack?
2. Have they observed any trends in cyberattacks over the past two years (January 2022 – January 2024)?
3. Did the cyberattack cause financial damage to the company?
4. Did the company have adequate protective mechanisms in place?

**Table 1.** Businesses' experiences with cyberattacks

| Company | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Response (the target of a cyberattack) | Yes | Yes | Yes | Yes | Yes | Yes | Yes | No | Yes | No (later Yes) |
| 2. Response (any trends in cyberattacks) | Yes | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 3. Response (financial damage) | No | No | No | Yes | No | Yes | Yes | No | No | No |
| 4. Response (have adequate protective mechanisms) | Yes | Maybe | Maybe | Not yet | Not yet | No | Maybe | Yes | Yes | Yes |

**Source:** Own research

The leaders unanimously assessed that cyberattacks pose an increasing threat to companies, including that executive who - based on his response - has not yet been affected by a cyberattack. (Later in the interview, the leader also changed their stance to acknowledge that there had been a cyberattack on their company.)

Although all the leaders indicated during the interview that, since there is no unified definition of what constitutes a cyberattack (whether it involves only penetration into information and communication systems or also includes social engineering methods (a form of attack that exploits human gullibility)), the responses could be misleading.

The leaders acknowledged that cyberattacks have become part of everyday operations, and the overwhelming majority have already encountered cyberattacks within their own operations, ranging from phishing emails to DDoS attacks to ransomware.

One-third of the respondents also revealed that cyberattacks had directly caused financial damage, which affected their business results. One out of three leaders, whose company suffered financial damage due to a cyberattack, explained that the attack (which was a ransomware attack) posed a serious problem for their business operations. In the weeks following the attack, there was concern that the business might not be able to continue its operations. Ultimately, the difficulty was partially remedied by involving external ICT experts.

All leaders agreed that no business today can guarantee operational continuity without cybersecurity tools. There is a need for the development of active, complex security systems. Businesses operating in the ICT field, in particular, cannot afford to neglect cybersecurity.

The uncertainty observed in responses to questions about defense against cyberattacks can be attributed to the respondents' awareness that it is an extremely fast-evolving field. Cyberattacks change daily, making it extremely difficult to keep defense systems up to date.

However, the investigation primarily did not seek to answer how traditional cyberattacks operate daily, but rather whether the theoretically proven thesis that AI represents a new era in cyberattacks is also observable by practical professionals.

Based on this, the final question of the interview methodology was related to whether they have observed in their business activities any cyberattacks that utilize AI. Leaders were allowed to provide a longer, detailed response to this question during the interview.

All leaders agreed that there has been an increase in the number of cyberattacks across all sectors in the recent period, and this growth is primarily attributable to AI. The majority of phishing campaigns are created in an automated manner – without human intervention. (In this question, the inaccuracy of the "yes or no" method became clear, as some company leaders did not classify non-targeted attacks, not exclusively directed against the company, as cyberattacks, hence the correction.)

The company leaders' vision was clear, indicating that both the quantity and quality of cyberattacks will change due to AI.

## 4.   MUST SHIFT THE BUSINESS SECURITY STRATEGY DUE TO AI

Theoretical and practical AI-driven cyberattacks have become commonplace in the lives of ICT companies. The rapid development of technology suggests that alongside digital risks, AI risks are increasingly emerging, and companies must find ways to confront this challenge.

Firstly, companies must face the fact that their strategy needs to be suitable for the 21$^{st}$-century environment. This strategy represents the companies' commitment to align their policies and mutually reinforcing processes in the interest of future business objectives (Pisano, 2015).

When formulating a company's strategy, an important consideration is that the analysis of external factors is based on an appropriate framework. The analysis of external factors includes considering trends that are currently emerging. The PESTEL analysis, which examines the external environment based on six aspects, includes technology as one of its factors. In examining the technological external environment, it is necessary to consider:
* The spread of the Internet of Things,
* The use of 5G,
* The penetration of the Internet,
* Automation and robotics,
* Cloud computing and Software as a Service (SaaS),
* Augmented Reality (AR) and Virtual Reality (VR) technologies,
* Artificial Intelligence (Sabri et al., 2018).

Taking the PESTEL analysis as a basis, we see that the technological environment has changed so rapidly and diversely that it is fundamentally necessary to rethink the business strategy.

The survey clearly indicates that companies in the ICT sector must pay close attention to changes in the technology segment when formulating their strategies, for two reasons. On one hand, from a theoretical perspective - if we consider the PESTEL analysis as one method of preparing for strategy formulation - the rapid changes in technology alone justify the need for continuous strategy renewal. On the other hand, practical experiences - based on research conducted on cyberattacks - have shown that a cyberattack can have a direct impact on both business continuity and financial performance. Based on this, it can be concluded that due to the existence and predictable increase of cyberattacks, companies must continuously focus on solutions against cyberattacks.

However, it is also evident from the survey that protection against cyberattacks has been more or less integrated into companies' strategies over the past decade (Duo et al., 2022).

But today, traditional cyberattack defenses are no longer sufficient. Examining the technological factor of the PESTEL analysis, the rise of AI necessitates new analytical considerations for strategy formulation. It is expected of company leaders to consider the impact of disruptive technology on the business world.

## 5.   FUTURE RESEARCH DIRECTIONS

The research treats artificial intelligence as a disruptive technology, which creates new, previously unseen phenomena in the business world.

The study examined how common cyberattacks are in business, their impact on companies' business activities, and whether companies have adequate security protocols to fend off these attacks. The study confirmed that cyberattacks are widespread, they impact companies' business activities, and as a result, corporate leaders are working on developing defensive measures (Yamin et al., 2021).

The opinion of the leaders surveyed in the study was that AI has already appeared in cyberattacks, with AI currently being "responsible" for a portion of the attacks, and they expect the trend of AI-led cyberattacks to intensify in the future.

Future research should focus on whether these predictions will indeed come to pass and whether cyberattacks will increasingly be AI-based or if technology will move in a different direction.

Additionally, it is necessary to examine the impact this will have on companies' operations, what decisions leaders will make, how the security strategies of companies will change, and how they will address future challenges.

## 6. CONCLUSION

The interplay between technological advancements and security concerns has ushered in a paradigm shift in how businesses approach cybersecurity. The emergence of artificial intelligence as both a tool and a threat in the cybersecurity landscape underscores the complexity and dynamism of modern security challenges. This paper has highlighted the increasing prevalence of AI-led cyberattacks and their implications for business operations and strategy formulation.

The findings from the survey of ICT company leaders reveal a consensus on the growing threat posed by cyberattacks, particularly those augmented by AI technologies. These attacks not only challenge the traditional cybersecurity defenses but also demand a reevaluation of strategic approaches to ensure resilience and continuity in the face of such threats. The incorporation of AI into cyberattacks represents a significant shift, making it imperative for companies to innovate and adapt their security strategies accordingly.

Moreover, the necessity for continuous strategy renewal, as evidenced by the PESTEL analysis, points to the need for businesses to remain vigilant and proactive in identifying and mitigating new threats. The rapid technological evolution, highlighted by the spread of IoT, 5G, cloud computing, and AI, necessitates a forward-looking approach to cybersecurity, one that anticipates and prepares for the next generation of threats.

In the future, it is clear that the landscape of cyber threats will continue to evolve, with AI playing an increasingly central role. This reality necessitates not only the development of advanced defensive mechanisms but also a strategic reorientation that integrates cybersecurity as a core component of business planning and operations. Companies must engage in ongoing research, collaboration, and investment in cybersecurity capabilities to navigate the challenges and opportunities presented by the digital age.

In conclusion, the rise of AI-led cyberattacks is not just a transient trend but a manifestation of the broader digital transformation impacting all sectors of the economy. Addressing this challenge requires a multidimensional approach that combines technological innovation, strategic foresight, and a commitment to cybersecurity as an integral part of business strategy. As companies adapt to this new reality, the lessons learned will be invaluable in shaping a more secure and resilient digital future.

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# Business Process Reengineering in the Era of Global Digitalization

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**Abstract:** *This article presents some key aspects of the application of business process reengineering in modern business organizations. The study is dedicated to some important concepts for both the reengineering of business processes and the fundamental changes in the digital transformation of enterprises. In its nature, business process reengineering represents the creation of fundamentally new processes that dramatically increase the efficiency of an enterprise. It is based on the general methodology of process management and has similar features to some of the methods of process improvement and quality improvement. But unlike improvement, reengineering implies a radical change of processes, not their gradual improvement. The main goal of the research is to propose a universal methodology for the effective reengineering of business processes, based on world experience and good practices, applicable in Bulgarian business organizations. It provides a basic framework for future more detailed and extensive research in the field of modeling, measurement, management and reengineering of business processes in the organization and analysis of the practical results achieved.*

## 1. INTRODUCTION

The modern world is changing rapidly. Humanity is entering a new stage in its development, which will fundamentally change all spheres of life. Scientific and technical progress does not bypass business, and if it wants to survive, it must also change. In a world of constant changes, there is a need for tools and methods, with the help of which the activities of organizations become more efficient and competitive. Business process reengineering (BPR) in business organizations is a key element in change. Reengineering business processes or an individual business process may be necessary for many reasons: when something in the business is not going well, distribution channels are not working as expected, when implementing an ERP system, when the pace of sales slows down, implementation is pending or recertification of a management system according to one of the ISO standards (ISO 9001, 2015; ISO/IEC 20000-1, 2018, etc.). Reengineering is needed also when the company is in a critical state, the company is in good condition, but the forecasts for the future are deteriorating or in the case when the company aims to break away from competitors. More and more business organizations realize the need to reengineer their business processes and face the serious challenge of how to do it. According to Panayotova and Angelova (2018), there is currently a new wave of interest in the reengineering of business processes in that its principles and methods that are relevant to system engineering as a whole can be applied to the development of inter-company relations.

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## 2.   BUSINESS PROCESS REENGINEERING

The concept of BPR is not new. It was created by Michael Hammer and James Champy of the Massachusetts Institute of Technology in 1990 and published in 1993. According to Hammer and Champy (1993): "A business process is a collection of activities that takes one or more inputs and produces an output that has value to the customer".

Figure 1 shows the business process structure, according to Robledo (2017).
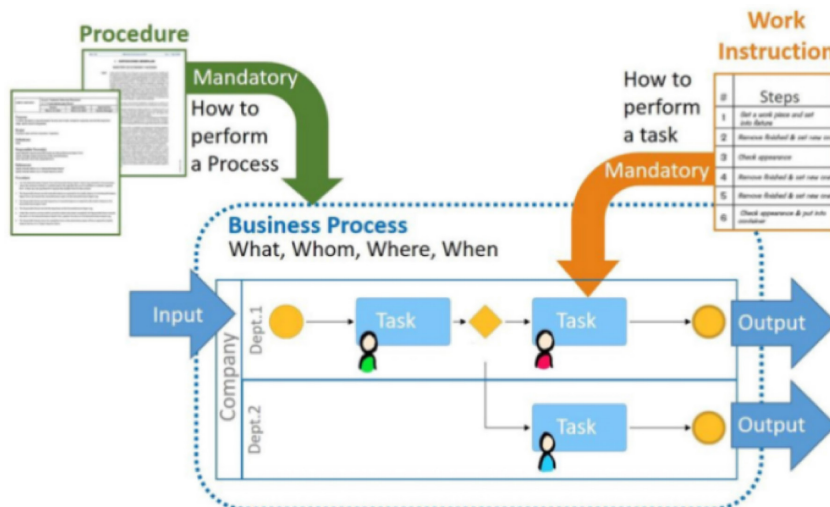


**Figure 1.** Business process structure
**Source:** Robledo, 2017

The standard for Quality Management Systems (QMS) ISO 9001 (2015) defines the concept of business processes as: "a set of related or interacting activities that transform inputs into outputs". It is possible to define a business process as a sequence of activities with an order of implementation in time, which transforms a given input into an output (result, product). Any activity or set of activities that use resources to convert inputs into outputs can be considered a process. Business processes can be modeled by reflecting on the beginning of the process, the responsibilities for the execution of the activities, the sequence of their progress, defining the role and importance of each activity, the events that occur in the process, and the finalization of one or more end events. The standard addresses processes in an organization such as "clients" and "suppliers". The standard for QMS ISO 9001 (2015) emphasizes the input and output of processes.
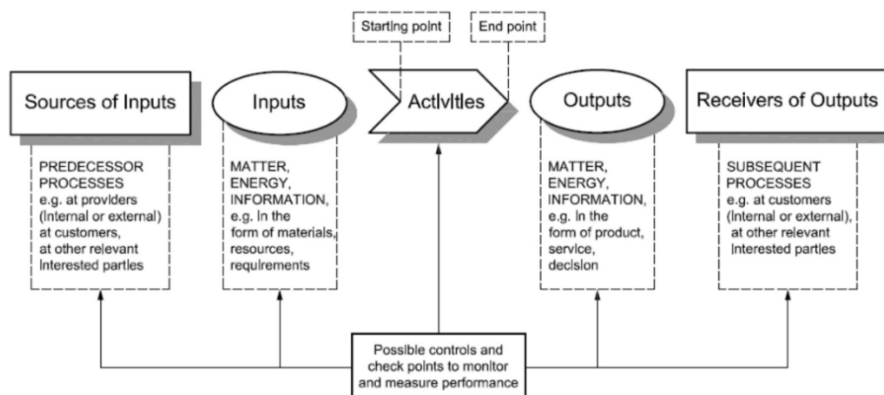


**Figure 2.** The focus of standard for QMS ISO 9001:2015 on the input and output of processes
**Source**: ISO 9001 (2015)

The modern stage of development is associated with increasing requirements for products and the need for sustainable growth, as well as with striving for effective application of technical achievements, and industrial and information technologies (Panayotova, 2018). Results can be products, services, solutions, etc. The process must create value along the chain. According to Davenport (1993), the characteristics that a process must possess are:

1. Must be definable – to have input, output, boundaries and scope;
2. To cover actions arranged in time and space;
3. To have a client - recipient of the output;
4. To add value along the value chain;
5. To be embedded within the organization;
6. Can involve people from different professional areas in the organization.

BPR is a fundamental rethinking and radical redesign of processes to achieve dramatic leap improvements in key business metrics such as revenue, costs, quality, speed, and service level. BPR is most often used for the minimization and redistribution of used resources; increasing the quality of service; shortening the deadlines for implementation; and moving from a functional to a process management approach. Reengineering identifies, analyzes, and redesigns an organization's core business processes to achieve dramatic improvements in critical performance metrics such as cost, quality, and speed. Information technology is perceived as facilitating the creation of new forms of organization and collaboration, rather than supporting existing business functions. Four main areas for change can be identified: organization, technology, strategy and people. The business process definition can be used as a general framework for considering these areas. There are three different types of process reengineering that any business can implement:

- ***Reengineering for cost improvement.*** This type of reengineering can lead a company to dramatically reduce the cost of non-critical processes, or radically change those processes, or even eliminate them. This goes far beyond what can be achieved with the usual cost-cutting efforts.
- ***Reengineering to make the organization more competitive.*** This type of reengineering seeks to delve deeper into the core processes produced in the business. It is to become best-in-class at a world-class level while achieving competitive equivalence with the companies that have historically set the rules and set the industry standards.
- ***Reengineering for radical innovation change.*** This type of reengineering seeks to find and achieve radical innovation points, change existing rules, and establish a new definition of best-in-class for all companies trying to become one.

BPR leads to the elimination of all activities that do not bring added value to the company or customers. This enables the company to improve its efficiency, reduce waste costs and achieve a better level of quality, efficiency and speed of processes by eliminating waiting times due to redundant coordination or approvals. A major part of BPR is the optimization of the organizational structure in the company with the aim of a clearer distribution of roles and responsibilities. It leads to an increase in operational efficiency, providing greater flexibility in decision-making, and improving internal communication and structural accountability. BPR is also related to the distribution of business activities to multidisciplinary teams composed of people with different professional qualifications who work together to achieve a common goal. The idea behind this distribution is that each team has full responsibility for the process it serves. An invariable part of BPR is the technological support of the optimized processes. Business and high technology are now so intertwined that software solutions today are not just desirable, but rather mandatory for long-term success. Companies that implement BPR are proven to improve their financial and

operational performance by optimizing these processes, which have a direct impact on company performance and customer satisfaction. By eliminating non-value-added activities, companies eliminate waste of time and resources. On the other hand, reorganizing human resources into cross-functional teams empowers employees, improves the flow of information, and reduces opportunities for error. The quality of products and services offered is increased by creating a smooth work process and creating a strong sense of responsibility in employees.

There are two main ways to reengineer an enterprise:
1. ***Evolutionary Approach*** or ***Fundamental rethinking of business processes*** – small changes in processes can lead to dramatic improvements in process execution and the way the enterprise operates.
2. ***Revolutionary Approach or Radical redesign of business processes*** – to forget everything done to the moment and practically construct the business from scratch. Drastic, because the expected improvements in indicators critical to the survival and prosperity of the organization such as costs, quality, customer service, and speed of response to the external environment must be in times, not in percentages. (Figure 3).
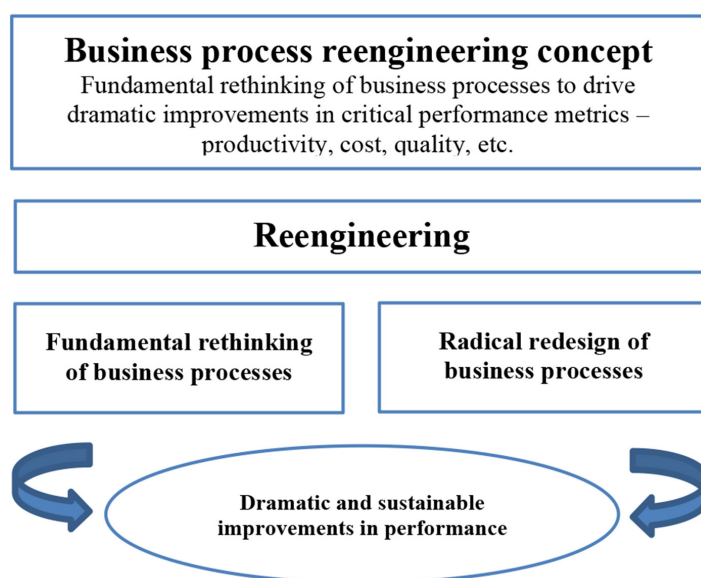


**Figure 3.** Basic ways of reengineering the enterprise
**Source:** Own processing

For small improvements, numerous other approaches are far less risky than reengineering. In this way, reengineering proves that big changes have big consequences and small changes have negligible impact. Through a radical restructuring of the organization, a drastic improvement in its efficiency must be achieved. Therefore, reengineering is often recommended as a solution to the recovery of enterprises in crisis. Reengineering requires a focus on the process and with it, often a radical change in the pattern of behavior and thinking in the organization. To make a comparison between BPR and other modern concepts of organization and management, an analysis of its strengths and weaknesses should be made. The main strengths of reengineering are:
1. Reengineering is aimed at satisfying the organization's customer requirements.
2. The organizational structure is designed in such a way that the processes in the organization can best run.
3. The best possible interaction between the newly built processes and the activity of the enterprise.

4. Regulates the results of the activity of each participant in the business process.
5. It minimizes processes and activities in the organization that do not lead to financial benefits.
6. Staff versatility.
7. Implementation of information and communication technologies.
8. Meets the requirements of ISO 9000 series quality standards.
9. The organizational structure is reduced in terms of staff numbers and hierarchical levels.
10. In many cases, this is the only option for the survival of the organization.
11. After reengineering, the change is total - it is not influenced by the „history" of the organization, etc.

The main disadvantages are:
1. High degree of risk for an unsuccessful outcome of the implementation of BPR.
2. High costs of implementing reengineering.
3. It takes a certain amount of time to get positive results, which many organizations do not have.
4. High social cost - reengineering is accompanied by mass layoffs of unskilled workers, and many others have to change their stereotypes of work.
5. Reengineering concentrates on cutting costs and increasing efficiency, while doing too little to increase sales revenue.

Three characteristic features have been identified by which reengineering can be distinguished from other modern concepts of industrial engineering and management:
1. Reengineering seeks to transform the organization, which provides for the reorganization of the course of activities according to certain criteria at a certain time, which is not tied to the previous decisions in the organization. This is in contrast to incremental improvement models and is the basis of promised large-scale improvement.
2. The object of reengineering is the process that covers the entire production chain. Reengineering does not seek to improve activities and make them more productive (for example, through automation), but to increase the efficiency of business processes.
3. In the form of computer networks and databases, information technology serves as a technological prerequisite for the existence of reengineering.

Processes should not be improved, but replaced with a completely new organization defined by the new technological possibilities. Reengineering sets itself the bold task of breaking boundaries. In reengineering, the new concept of the overall structures and flow of processes in the organization is not based on existing processes, nor on rethinking existing ones. Reengineering involves understanding the need for change, but done without looking back. This means that production processes must be analyzed and redefined without following established, traditional organizational and production structures. Not only the isolated rationalization of individual units, but the overall restructuring is the focus of reengineering.

It can be summarized according to Angelov (2008):
1. BPR is not automation. Automation of business processes leads to changes in existing processes and to improvements in the organization's indicators by 10-15%. The task of BPR is the fundamental rethinking and radical redesign of existing business processes in order to obtain dramatic leap-like changes (improvements from 500 to 1000%).
2. BPR is not Software reengineering. The goal of BPR is not only the replacement of outdated technologies with modern information and communication systems.

3.  BPR is not a reorganization of the organizational structure in the organization. Reorganization is related to structure, and reengineering is related to processes. The functioning of the traditional hierarchical structures is related to the bureaucracy, which unites the individual divisions of the organization into one whole. The elimination of bureaucracy can be done by BPR.

4.  BPR is neither quality improvement nor Total Quality Management (TQM). They are similar in importance and significance of process improvements. TQM builds on existing processes and seeks their improvement, while BPR replaces existing processes with new ones.

Due to the multitude of definitions in circulation, it can be assumed that reengineering seems to be simply about the idea of taking apart an organization and putting it back together again, more efficiently, cheaper and with less staff (Buchanan, 1997).

Based on the scientific research and good business practices within this research, the idea arises that good results can be obtained when integrating the concept of TQM in the design and reengineering of business processes in the organization. The TQM concept links the quality of products to the processes that create them, and all these processes are interconnected in a functional system. The QMS is part of the general corporate management system of the organization. The improvement and improvement models are developed based on summarizing the experience and good practices of leading global companies and contribute to the assessment of the level reached by organizations that have decided to meet global criteria. Organizational excellence is a higher phase in the development of management methods through TQM. Organizational excellence is achieved through the transition from information technology to knowledge management, from continuous and innovative process improvement.

Benchmarking is a core practice in today's highly competitive business. It provides a framework for evaluating performance, setting goals and monitoring progress. Benchmarking can cover various aspects of a business, including processes, strategies, products, services and customer satisfaction. Benchmarking is a dynamic process that enables businesses to gain valuable information, drive improvement, and achieve sustainable success and competitive advantage. Applying a systematic approach to benchmarking enables organizations to set realistic goals, monitor progress and continuously adapt to the evolving business environment (Dimitrova, 2023).

The integration of the concepts of TQM, organizational excellence and benchmarking in the reengineering of business processes in an organization can lead simultaneously to improving the quality of both products and processes, to increasing the productivity and efficiency of business processes, and thereby to increasing competitiveness and long-term sustainable development of the organization. The study shows that an appropriate combination of models and concepts in the conditions of Bulgarian business organizations is the combination of the ISO 9001 (2015) QMS, the EFQM Excellence Model 2020 organizational excellence model (EFQM, 2024), benchmarking, and a business process management and reengineering system in an integrated corporate system for managing business processes. Figure 4 shows a conceptual generalized algorithm for such an integrated management and reengineering model in the enterprise business process management system.

## 3.  DIGITAL TRANSFORMATION AND REENGINEERING

Digital transformation is not only a technical change, but also a change in company culture, operational habits and overall change in the organization of a company. Under this expression is meant a thoughtful integration of digital technologies, optimization of processes and methodologies at all levels in a company, and even an entire industry. Through it, companies seek

to influence all outdated models and processes in order to achieve time and cost optimization. In addition, digital transformation can provide organizations with valuable information about customer behavior and preferences that can be used to create a better customer experience. The three main challenges of digital transformation are organizational culture, cost and security:

1. The organization must have the right culture to enable the process of change and enable innovation.
2. The costs associated with investing in technology, training and other resources.
3. There is the security challenge of protecting data and systems from potential cyber threats.

Digital transformation is possible thanks to various technologies that have become more accessible and cheaper in recent years. These technologies include Cloud computing, Artificial intelligence, Machine learning, the Internet of Things, Blockchain, Virtual reality and Augmented reality. Cloud computing allows companies to store data and access it anywhere, and Artificial intelligence and Machine learning help simplify routine tasks. The Internet of Things helps connect devices and transfer data, and Blockchain offers secure digital transactions. Virtual and Augmented reality offer new opportunities for businesses to engage with customers and improve their experience. By using these technologies, companies can significantly improve their operations and create new opportunities. According to many, the mass adoption of artificial intelligence will be an epochal event, equal in importance to the other technological revolutions that define our present - the Industrial Revolution in Britain and the Digital Revolution that started in the USA.

Digital transformation is an essential part of the success of any business. Now more than ever, industrial enterprises need a business transformation strategy because in today's environment, companies face many challenges, the most significant of which are (Lazarov, 2020):

- Hypercompetitive business environment, requiring continuous improvement in business management;
- Market volatility, tightening regulatory regimes, demographic changes and workforce quality;
- Exponential development of information technologies, which rewrite the rules of business;
- Change in the business environment under the influence of digital technologies takes place at a much faster pace than the pace of transformation of organizations;
- Modernization of the industry and the economy leading to the formation of huge data sets, which become a leading business asset and are not used to their full potential.
- Industrial companies are taking action to address these challenges, which inevitably changes the business environment and leads to:
  - Formation of new conditions for business functioning and new approaches in the adoption of management decisions;
  - The radical rethinking of the way enterprises use technology to meet challenges;
  - Improvement of business models, processes and competencies for full use of the possibilities of digital technologies and their impact on the strategic development of the enterprise;
  - Using technology to complement human capabilities, leading to a fundamental transformation of many professions;
  - Changing the requirements for workers while minimizing low-skilled labor and transforming it into innovative activity in processes, products and services.

Achieving successful organizational transformation is far from easy. According to a study by the consulting company McKinsey & Company (Boer et al., 2018), only 26% of companies achieve

their performance goals and can lay the foundations for sustainable results. Many barriers, from accepting the current organizational structure as a starting point to ignoring external costs, can hinder efforts to improve efficiency and reduce costs. Additionally, traditional approaches to operations may miss opportunities to use technology to increase efficiency. McKinsey & Company research shows that more than 40% of the value of a successful transformation comes from growth initiatives, not cost-cutting, layoffs or other strategies.

Process reengineering should not be confused with automation, but whenever a decision is made to implement an information system it should be considered whether it is not necessary to reengineer the processes to avoid modeling some bad practices because it enters in some conflict with classical information systems. Most of the classical information systems that are available on the market assume that enterprises are relatively stable. In practice, very often processes are completely different, and digital transformation gives a new concept for creating and implementing flexible processes.

## 4. INTEGRATED MODEL OF BPR

As a result of the literature review and practical observations and investigation in operating industrial enterprises, an Integrated Model of BPR is developed. It is presented in Figure 4 in algorithmic form. The model is based on three fundamental concepts - Quality management system according to ISO 9001 (2015), EFQM Excellence Model 2020 and Business Process Management. The proposed Integrated Model of BPR can lead to the desired results only with large-scale application of modern information and communication technologies. Digital reengineering of business processes is a modernized version of traditional reengineering that integrates new digital technologies and tools to achieve more efficient, fast and automated processes. It includes not only a radical review and redesign of business processes, but also the implementation of digital solutions such as automation, artificial intelligence, cloud technologies and big data analysis. The goal is to optimize workflow, reduce costs and improve user experience in the dynamic digital environment.
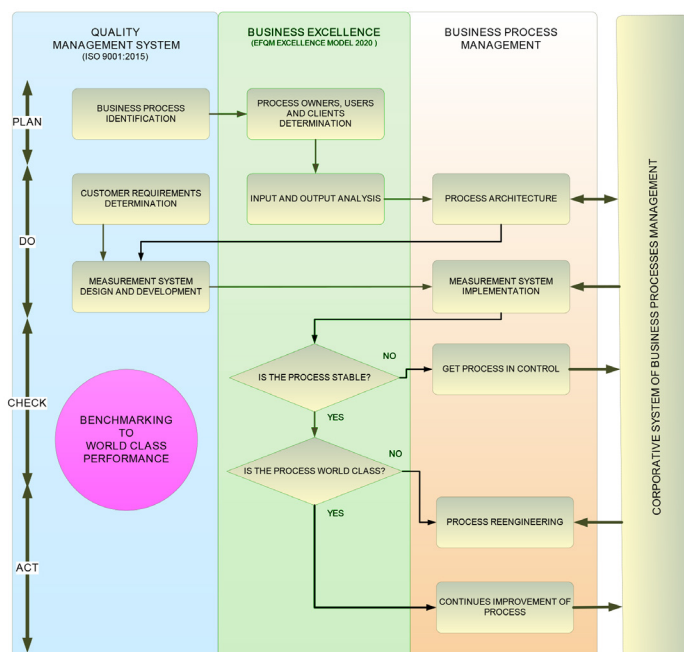


**Figure 4.** Integrated Model of BPR
**Source:** Own processing

## 5. FUTURE RESEARCH DIRECTIONS

In order to achieve sustainable development in the era of rapidly developing information technologies, it is necessary to apply new approaches to BPR in industrial enterprises. This necessitates the continuation and deepening of scientific research in this area and the study of world experience and successful good practices. A long and complex process of testing and improving the model is ahead in order to make it a practically applicable and really effective tool for managing business organizations.

## 6. CONCLUSION

Against the background of ever-increasing globalization, increasing the competitiveness of enterprises requires taking into account the rapid development of technologies, making quick adequate management decisions and using new approaches to improve the activities of enterprises, such as BPR in combination with other management models and techniques. Information technology is a powerful tool for shaping and redesigning business processes. Companies that can master the skills to redesign processes by applying the opportunities that information technology provides will be well prepared to meet the challenges of today's dynamic world.

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# Digitalization Through Innovation Strategies in the Western Balkans

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**Abstract:** *This paper explores the integral role of innovation and digitalization in driving economic growth and enhancing the competitive landscape for businesses in the Western Balkans (WBs). By analyzing comprehensive data from the Balkan Barometer, this study identifies the current state of digital adoption, the barriers to further digitalization, and the effectiveness of regional digital policies. The paper categorizes the types of innovation, each contributing uniquely to organizational strategies and processes. Additionally, it discusses the transformative impact of digital technologies, highlighting their role in process and product innovation. Special attention is given to the challenges faced by businesses in the WBs. The findings suggest that while digital technologies offer significant opportunities for innovation and competitive advantage, substantial obstacles hinder their full utilization.*

## 1. INTRODUCTION

Innovation is universally recognized as a cornerstone of economic growth and competitive advantage. As Coccia (2017) articulates, understanding the multifaceted nature of innovation is crucial for businesses and policymakers aiming to navigate its complex landscape effectively. In the realm of business, innovation manifests in various forms – ranging from incremental improvements to radical overhauls of products and services. Currently, the digital transformation of businesses – integrating digital technologies in all areas of operation – has emerged as a transformative force across global industries. This paper focuses specifically on Western Balkans' region that, despite its potential, faces unique challenges in adopting and leveraging digital innovations. By utilizing data from the Balkan Barometer provided by Regional Cooperation Council (RCC), the study offers an analysis across the WBs countries (Albania, Bosnia and Herzegovina, Kosovo*, Montenegro, North Macedonia, and Serbia). This analysis highlights the specifics of digital readiness, identifies the main obstacles hindering digitalization, and evaluates the impact of regional initiatives aimed at fostering digital integration. Through this comprehensive study, we aim to provide valuable insights into the dynamics of innovation and digitalization in the WBs. The goal is to support the development of targeted strategies that can accelerate digital adoption, enhance regional cooperation, and facilitate the socio-economic integration of the WBs into the European Union (EU). The discussion session is intended to guide policymakers, business leaders, and stakeholders in crafting effective interventions and policies that harness the full potential of digitalization and innovation for regional growth and development.

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## 2. INNOVATION AND DIGITALIZATION, CATALYSTS FOR GROWTH

Innovation plays a pivotal role in driving economic growth and enhancing the competitive advantage of organizations (Coccia, 2017). To navigate the complex landscape of innovation effectively, businesses and policymakers must comprehend the various types of innovation. Table 1 provides an encompassing overview of these types, offering insights into their characteristics, accompanied by respective references.

**Table 1.** Types of Innovation

| Type of innovation | Reference | Characteristics |
|---|---|---|
| Incremental innovation | (Rubin & Abramson, 2018; Saridakis et al., 2019) | Minor improvements/modifications to existing products; increased efficiency |
| Radical innovation | (Tidd & Bessant, 2020) | Creates new solutions; leads to disruption of established markets |
| Architectural innovation | (Foss & Saebi, 2017; Tushman & Smith, 2017) | Make changes to the system; change to achieve improved performance |
| Modular innovation | (Beltagui et al., 2020; Leminen et al., 2020; Rajala et al., 2019) | Combines or reconfigures; aims for flexibility and customization |
| Disruptive innovation | (Christensen et al., 2018; Zach et al., 2020) | Provide simpler, more affordable, or more accessible solutions |
| Open innovation | (Bagherzadeh et al., 2020; Scuotto et al., 2020) | Emphasizes collaboration/knowledge sharing with external partners |
| User innovation | (Nielsen, 2020; Rayna & Striukova, 2021) | Involves end-users; can lead to novel solutions |
| Process innovation | (Akpoviroro et al., 2019; Goni & Van Looy, 2022) | Improve methods to produce goods; aims cost reduction |
| Product innovation | (Albort-Morant et al., 2018; Liu & Atuahene-Gima, 2018) | Involves changes in design, features, functionality |
| Service innovation | (Kurtmollaiev & Pedersen, 2022; Mahmoud et al., 2017) | Involves development of new service offerings, customer interactions. |

**Source:** Own research

Innovation seems to be a multifaceted concept with various types, each offering unique opportunities and challenges for organizations. Understanding these types of innovation is crucial for businesses seeking to stay competitive and adapt to changing market dynamics. By recognizing the distinctions among different types of innovation, organizations can better strategize their innovation efforts to achieve sustained success. On the other part digitalization in business involves integrating digital technologies into all areas of a business to improve operations and deliver value to customers. It is a complex process that requires several essential components to be successful. Beltagui et al. (2020) accept innovation ecosystem is necessary to combine physical and digital elements while Yin et al. (2020) consider it necessary to improve performance and maintain sustainability. Incubators and accelerators can help nurture new ideas and s speed up the innovation process within companies (Tosheva & Petrishkova, 2020). But it cannot happen without fast and reliable internet connectivity (Mrdović, 2023) and IT infrastructure that can handle large amounts of data and support sophisticated applications. Advanced technologies such as cloud computing allow businesses to store information on the internet and access it from anywhere, something that enhances flexibility and scalability (Akter et al., 2022; Castro-Leon & Harmon, 2016). Lang and Triantoro (2022) consider digital skills and mindset as important for employees as they are important to embrace innovation and continuous learning. But on the other hand, managing the transition to digital operations is considered by the management themselves, in their strategic planning.
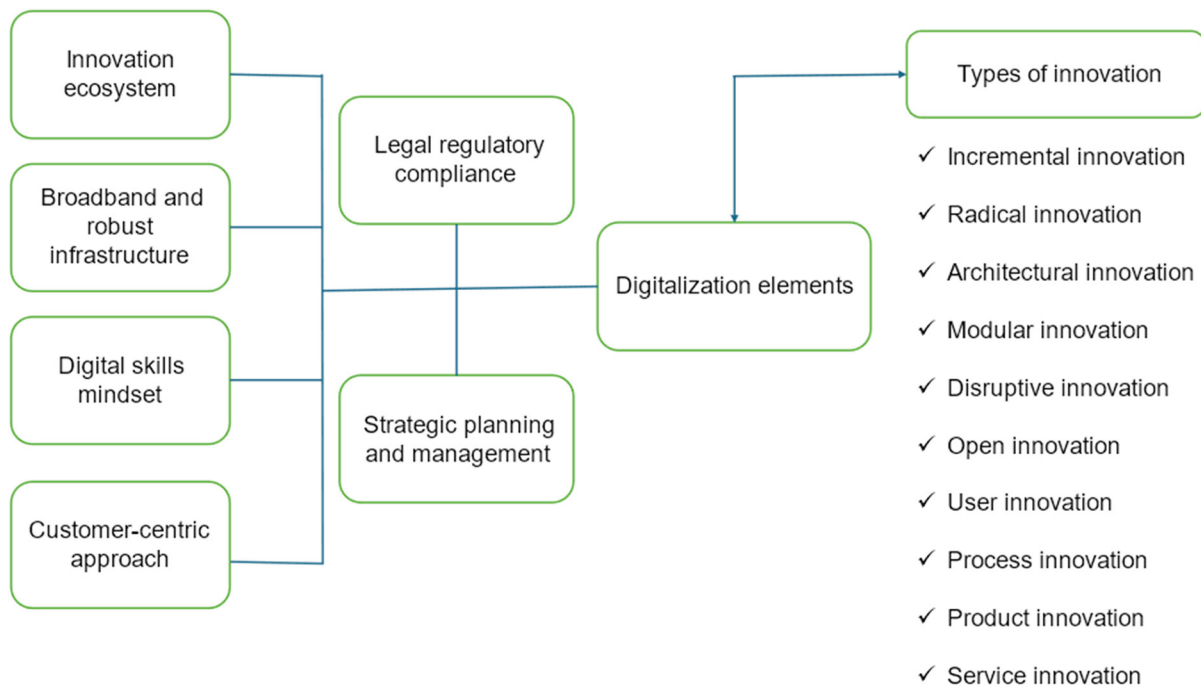
**Figure 1.** Key elements of digital transition
**Source:** Own research**Source:** Own research

A clear strategy that aligns digital initiatives with the business is key to success. Digitalization has emerged as a transformative force shaping industries and businesses worldwide. The adoption of digital technologies has had profound effects on innovation within organizations, affecting their strategies, processes, and products/services, meaning it can be integrated with all types of innovation. Digitalization encompasses the integration of digital technologies into various aspects of business operations. It involves the use of technologies such as Big Data, Cloud Computing, Artificial Intelligence (AI), Internet of Things (IoT), and Blockchain to enhance efficiency, decision-making, and competitiveness. As businesses increasingly embrace digitalization, it has become a key driver of innovation. Digitalization enables businesses to streamline processes, automate tasks, and improve operational efficiency. Studies (Chirumalla, 2021; Rachinger et al., 2018) have shown that digitalization initiatives lead to process innovation, enhance productivity and reduce costs and have a big impact on value creation (Rachinger et al., 2018). Digital technologies enable organizations to develop innovative products and services. The advent of digital platforms, mobile apps, and software-as-a-service (SaaS) solutions have empowered companies to deliver new offerings to meet changing customer demands and preferences (Akter et al., 2022; Arkhipova & Bozzoli, 2018; Castro-Leon & Harmon, 2016). Digitalization facilitates collaboration and knowledge sharing within digital ecosystems. Companies can collaborate with partners, customers, and even competitors to co-create new solutions. Open innovation models are increasingly prevalent in digital ecosystems, fostering innovation (Esposito De Falco et al., 2017; Radziwon & Bogers, 2019). Despite the potential benefits, there are challenges associated with digitalization-driven innovation. These include data security and privacy concerns, digital skills gaps, resistance to change, and high initial investment costs. However, effective leadership is crucial for successful digitalization and innovation efforts. Leaders must foster a culture of innovation, invest in employee training, and align digital strategies with overall business goals. Several case studies highlight the link between digitalization and innovation in various industries. Examples include Amazon's use of data analytics and cloud computing, tesla's electric vehicles, and Airbnb's

platform-based business model. Digitalization has become an integral driver of innovation in the business world. However, organizations must address challenges such as data security, skill gaps, and resistance to change to harness fully the benefits of digitalization for innovation. Leadership plays a pivotal role in guiding businesses through their transformative journey. Future research should continue to explore the dynamics between digitalization and innovation as technology continues to advance.

## 3. METHODS

The study utilizes data from the Balkan Barometer, which is provided by the Regional Cooperation Council (Barometer Balkan, 2024). This data source offers comprehensive insights into various aspects of social, economic, and digital development across the WBs. The use of such a dataset suggests the reliance on existing, large-scale surveys and statistical data to analyze trends, perceptions, and outcomes related to digitalization and innovation. The study specifically targets the WBs countries (Albania, Bosnia-Hercegovina, Kosovo*, Montenegro, North Macedonia, and Serbia). This geographic focus indicates a comparative analysis across the nations, which can highlight differences and similarities between the countries in the region, while descriptive analysis helps in detailing the current state of digitalization, obstacles faced, and the overall impact of digital technologies on innovation.

## 4. INNOVATION IN THE WESTERN BALKANS, COMPANIES EMBRACING DIGITALIZATION

Observing the Balkan Barometer data for businesses, the main obstacles to business present in the area for the last 3 years (2021-2023) are access to land and telecommunication and investment in broadband (RCC, n.d.). The main elements in continuous change are public/private cooperation and physical infrastructure (for 2023 Kosovo* performing the best and North Macedonia is the worst), but there is a slight improvement in both in comparison to the previous years (Graph 1). Telecommunications are still one of the main issues in business operations, it shows there is a need for more improvement. Having a regional roaming regime aims to reduce costs and foster regional cooperation, but only 34% of the businesses think this has eased communication with partners in the region, while 44% affirm there has had no impact at all. The fact that 61% of the businesses do not practice online buying/selling is a possible statistic suggesting that a relatively significant part of the businesses may not have embraced digital technology to its full potential. Operating in a more traditional or offline manner could indicate a lower level of maturity within the organizations in the region.

As previously discussed, the online presence raises security problems. Based on the data, most of the businesses do not report internet security problems, even if in the region there have been some sporadic data breaches, but not on business levels. While referring to internet connection satisfaction, there are great data on this with Serbia performing the best and Kosovo* being the worst.

Regarding the issue of how much there is support for innovation activities in the region by business perception, businesses are mostly positive for policies that promote innovative activities, and the innovation infrastructure. Going on the data for specific countries in the WBs it seems Kosovo* is performing best on Policies, while Serbia has a stable evaluation for all innovation activities.

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\* Under the UN Resolution 1244.
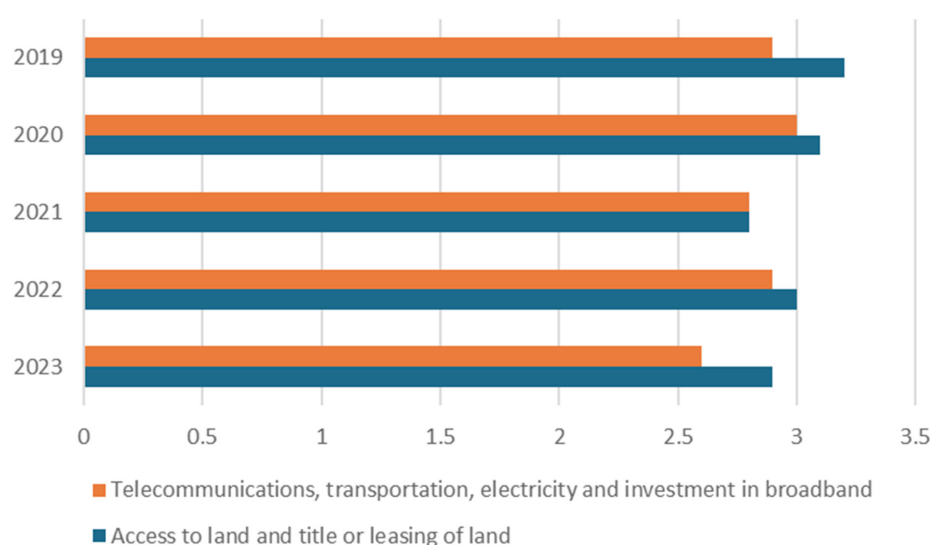
**Graph 1.** Problematic issues for operation and growth of the business
**Source:** Barometer Balkan, 2024



**Graph 2.** Support for innovation activities
**Source:** Barometer Balkan, 2024

On the discussion of businesses having government support for innovation activities, most of them accept there is no support. But then again going on data of specific countries, Kosovo* government seems to give relatively more support to businesses, while businesses in Albania and North Macedonia are getting the least support from their respective governments. On the other hand, there is improvement in policies that promote and encourage innovative activities and innovation infrastructure (Graph 2).

## 5.    CONCLUSION

Businesses that do not engage in digital solutions may miss the advantages of digital commerce, such as a wider customer base, reducing operational costs, and improving efficiency. Depending on the industry and market, the lack of online presence may also limit the business's ability to access new markets or cater to changing consumer preferences. It could also affect their ability

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\*     Under the UN Resolution 1244.

to adapt to disruptive changes in the business environment. These issues could potentially put businesses in the region of the WBs at a competitive disadvantage compared to more digitally well-informed competitors.

Focused on the WBs, an area often underrepresented in global digitalization studies, the study offers insights into the challenges and opportunities faced by countries at different stages of digital adoption. By identifying necessary strategies to drive digitalization, the research supports the broader goal of socio-economic development and integration into the EU, benefiting both the region and the EU at large. In the practical context, the study can guide the development of targeted interventions, policy reforms, and strategies to accelerate digital adoption. Understanding the dynamics of regional initiatives is crucial for both regional stakeholders and EU policymakers. EU through its engagement and RCC are key actors in developing a long-lasting regional framework to facilitate digital upskilling (Mrdović, 2023). Understanding the current state of technology adoption can encourage businesses to embrace digital technologies more fully, leading to enhanced competitiveness and innovation.

The digital agenda for the WBs is set from 2018. At Digital SME Summit, taken place in Brussels on 13 November 2023, there was discussed the new digital agenda, set after Digital SME recommendations, which are:
- Establish the role of Digital Attaché in WBs' EU Delegation.
- Implement the one-stop shop support of European Digital Innovation Hubs in WBs.
- Establish a Cybersecurity Skills Academy that will deliver specialized training for young graduates and employees of public administrations.
- Train a selected pool of experts on ICT standards to facilitate the uptake of digital technologies and drive global leadership in emerging technologies.
- Launch an investment package to support digitalization under the EU Economic and Investment Plan for the WBs.

Regarding digitalization, it seems that countries are making improvements in embracing digitalization. They are implementing the S3 Framework (Smart Specialization) where digitalization holds a central place. However, the region suffers from migration, which creates skills shortages. Digital technologies are shown to affect organizations' strategies, processes, and products/services, making digitalization a significant driver of innovation. New forms of BM are emerging, platforms and platform work (Petrušić & Đukanović, 2023), embracing digitalization in its full potential. The implementation of regional initiatives like the roaming regime and its impact on business communications within the WBs are vital for fostering regional cooperation, reducing costs, and ultimately supporting the region's economic integration in the EU. Still, cybersecurity remains a critical issue for the region as underdeveloped defense systems may make the countries easy targets (Mrdović, 2023). It seems the WBs region is open to innovation fostering the infrastructure and having the right policies to enhance innovation, nevertheless, businesses get little government support for their innovation activities. The focus of the region on digital agenda can support businesses through different types of innovation, making the WB countries more competitive in the market.

## Acknowledgment

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# Relationship Between Goal Ambiguity and Performance Information Use. A Systematic Literature Review

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**Abstract:** *This study has developed a systematic literature review to provide a theoretical framework for understanding the relationship between goal ambiguity and performance information use in public management decision-making. According to the previous systematic literature review in management, this literature review developed a quantitative data analysis and qualitative analysis based on the summary of articles according to the variables approach of the study. The results of the systematic review analysis were limited to 68 studies on performance information use and 48 studies on goal ambiguity issues. From the selected papers the results clearly show that only 12 articles study both topics and establish a relationship between goal ambiguity and performance information use.*

## 1. INTRODUCTION

Organizational goal ambiguity refers to "the extent to which an organizational goal or set of goals allows leeway for interpretation when the organizational goal represents the desired future state of the organization" (Chun & Rainey, 2005a, p, 2). Instead, Moynihan (2008, p. 5) defines performance management as a "system that generates performance information through strategic planning and performance measurement routines and that connects this information to decision venues, where, ideally, the information influences a range of possible decisions".

This study has developed a systematic literature review to provide a theoretical framework for understanding the relationship between goal ambiguity and performance information use in public management decision-making.

Specifically, the objectives of the review are:
- To review separately the literature on the performance information use and goal ambiguity topic and identify the paper that studies both topics.
- Establish the nature of the relationship between goal ambiguity and performance information use.

Based on the author's dataset, a literature review on each topic has already been published by Kroll (2015), Putu et al. (2007), and Liu and Van Dooren (2013) in performance information use topic, and Rainey and Jung (2015) in goal ambiguity topic.

However, this work differs in its purpose and research design. Regarding the purpose, this study aims to provide a theoretical framework for understanding the relationship between goal ambiguity and performance information use in public management decision-making, while the systematic

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literature review mentioned seeks to contribute to a better understanding only of the use of performance information in decision-making or to develop the understanding of the demand for and supply of performance information in developing countries or to define the use of performance information as an organizational routine in management control or propose a conceptual framework to organize and make explicit the observations complexities of organizational goals and their analysis. The research design of this study is based on a previous systematic literature review in management and adopts a well-codified research protocol and replicable quantitative (in table form or figures) and qualitative (answers questions; why, what, how) analysis for the reporting of the 116 selected papers.

In this work, we used different types of research design, to answer the research questions. We use a *correlation research design* to investigate the relationship between performance information use and goal ambiguity, and an *explanatory research design* is used to elaborate and interpret the correlation between the two variables.

According to Rousseau et al. (2008), since our review purpose is determined at the beginning of the work and attempts to make sense of a body of existing literature through the aggregation, interpretation, explanation, and integration of existing research it is a *stand-alone literature review (typology)*.

## 2. METHODOLOGY

We adopted the "systematic literature review" method as a research design most suitable to the aim of this research. The systematic literature review was conducted regarding previous studies in management research (Briner & Denyer, 2012; Crossan & Apaydin, 2010; Denyer & Tranfield, 2009; Denyer et al., 2008; Pittaway et al., 2004; Thorpe et al., 2005; Tranfield et al., 2003).

The systematic review process followed the three stages of the procedure illustrated by Tranfield et al. (2003): planning, conducting the review, and reporting.

a) *During the planning stage* the review team: a) defined the objectives of "goal ambiguity" and "performance information use" topics of research; b) used the brainstorming method to identify keywords and search terms on the subjects based on their prior experience and prepared the proposal; c) developed the protocol of research.

To define the protocol of the research, we followed the below basic principles of adopting the systematic review:

- We followed *locating studies'* principles where our objective was intentionally broad in conducting separate research to better understand the link between the use of performance information and goal ambiguity in the public sector and identified the articles that study both topics to empirically draw relationship lessons in public management decision-making in Italy. Also, more than one online database was used. Selected databases were SCOPUS and Business Source Premier EBSCO. Since the different databases have different time frames of data and articles as their source we decided: not to use the same number of keywords and time frames for both research databases.

- According to Denyer and Tranfield (2009, p. 684) and Thorpe et al. (2005, p. 258) search strings on the databases were combined based on Boolean logic operators: Only OR in the strings to include synonyms, AND to join the main terms.

- According to *the study selection and evaluation principles* and the requirement for *transparency,* the articles identified were reviewed based on inclusion and exclusion selection criteria (Table 6).

- The articles' substantial relevance for the study and quality assessment criteria determination was assured according to *the equality* principle of Pittaway et al. (2004) and the "*fit for purpose''* approach by Denyer et al. (2008, p. 402).

*b)* In the *second stage "conducting the review"* activities include: 1) keywords search strings in EBSCO and SCOPUS databases were used to identify articles containing at least one of the primary keywords in their abstract of title, 2) exclusion analyses were conducted eliminating all those articles whose abstracts were not substantively relevant; duplicates identification and elimination, 3) selected all those articles whose abstracts were substantively relevant and allowed for the conclusive alignment between the chosen works and the research goals, 4) quality and relevance criteria were used to select all those articles whose text was substantively relevant for the study purpose.

*c)* The third stage *Reporting and dissemination* review procedure to make it easier for the practitioner to understand the research-reported findings in quantitative and qualitative analysis of the primary 116 research papers selected.

## 2.1. Protocol Research

We defined the protocol of systematic literature review for the aim of this research based on the management literature (Newbert, 2007; Mari & Poggesi, 2013; Denyer & Tranfield, 2009, p. 684; Abatecola, Caputo, et al., 2013; Abatecola, Mandarelli, et al., 2013; Poggesi et al., 2016) for both goal ambiguity and performance information use literature topic, establishing the following set of criteria.

Protocol for performance information use and goal ambiguity topics:
1. We chose Scopus and Business Source Premier EBSCO as the research databases.
2. We did not use the same number of keywords and time frames for both research databases.
3. We examined only peer-reviewed journal full-text articles published in English.
4. We selected articles containing at least one primary keyword in their title or abstract to ensure substantive relevance (after applying the limiters explained in the online databases research procedure).
5. Elimination of the duplicated articles.
6. We scanned all the articles selected in the previous phase 4 by reading their abstracts to ensure substantive content.
7. We controlled the articles' relevance by reading the full text of all the articles selected through the previous screening of abstracts.
8. We finally adopted a "snowballing" technique (i.e. searching in the reference lists of the selected papers to add other coherent papers) for consolidating the research outputs.

**Table 1.** Results Summary

| Phases | Description | Total PIU[*] | Total GA[**] |
|---|---|---|---|
| 4 | All those articles containing at least one of the primary keywords in their abstract or title after limiters | 2624 | 2465 |
| 5 | Duplicated articles elimination | 2591(33) | 2448 (17) |
| 6 | According to the chosen "fit fur purpose" method, all those articles whose abstracts were substantively relevant | 169 | 126 |
| 7 | According to the chosen "fit for purpose" method, all those articles whose text was effectively relevant | 64 | 42 |
| 8 | "Snowballing" technique | 68 (4) | 48 (6) |

\* Performance information use (PIU) topic. \*\* Goal ambiguity (GA) topic.

**Source:** Own research

The results of the systematic review analysis were limited to 68 studies on performance information use and 48 studies on goal ambiguity issues.

## 3. RESULTS

### 3.1. Results of Performance Information Use

The analysis of 68 articles on performance information use topic enabled us to identify (Graph 1) that the articles included in the author database were published from the year 2002 to March 2020, so a time frame of 18 years rather than 35 years time frame applied by us in online research databases, with a growing trend from the year 2013 and the highest number of articles are published in the years 2016, 2018, 2019.

The following Table 2 provides a summary of the journals with the largest number of articles published. The database's articles were published in 17 different journals from which 8 had published only one article, and the research on performance information use is mainly published in specialized journals on performance in the public sector (such as the Journal of Public Administration Research and Theory 19,15%, Public Administration Review 19,15%, Public Performance and Management Review with the biggest number of articles published, about 22%, Public Management Review 5,88%, Public Administration 7,35%), and less in general management science (such as Financial Accountability & Management 5, 88%, Administration and Society 2,94%, International Review of Administrative Sciences 2,94%, Public Money and Management 2,94%).
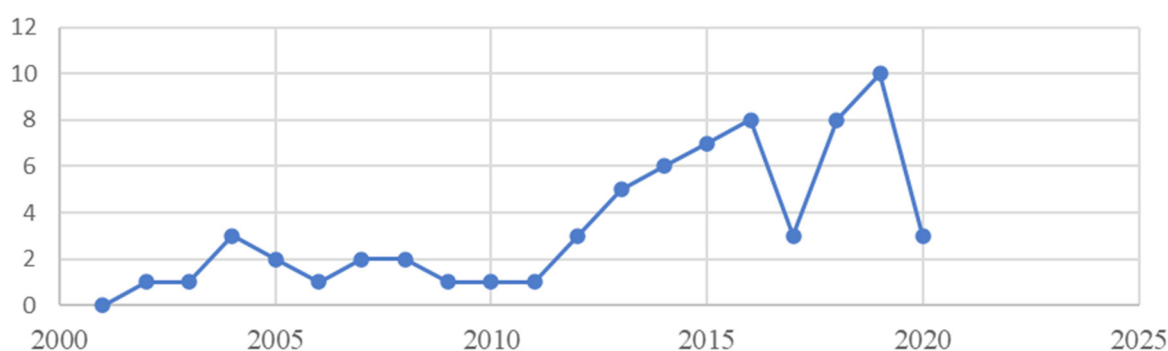


**Graph 1.** Articles Distribution Published per Year (PIU)
**Source:** Own research

**Table 2.** Distribution of Articles by Journal

| "PIU" Journal Title | Number | Percentage | Journal Localization |
|---|---|---|---|
| Administration and Society | 2 | 2,94 | America |
| Financial Accountability & Management | 4 | 5,88 | Europe |
| Journal of Public Administration Research and Theory | 13 | **19,15** | Europe |
| Public Administration | 5 | 7,35 | America |
| Public Administration Review | 13 | **19,15** | America |
| Public Management Review | 4 | 5,88 | Europe |
| Public Money and Management | 2 | 2,94 | Europe |
| Public Performance and Management Review | 15 | **22** | Europe |
| International Review of Administrative Sciences | 2 | 2,94 | America |
| Journals with only one article published | 8 | **11,76** | **Both two continents** |
| **Total** | **68** | **100%** | |

**Source:** Own research

We found a clear prevalence of articles published in scientific journals localized in Europe (about 65%), while United States journals represent about 35 % of the total. This shows a significant

difference in publishing interest between journals located in Europe and those located in the United States. No journal was located on other continents. This brief analysis demonstrates that the performance information use issue is still dominant (or more common) in European and United States journals and is less relevant or not relevant at all elsewhere.

The analysis showed a prevalence of studies of the origin of samples from European countries, representing 48 % of the sample. American countries' studies represent only 31%. Australian, South Korean, and Asian studies represent 3% of the total sample. Instead, Africa represents 2% of the sample.
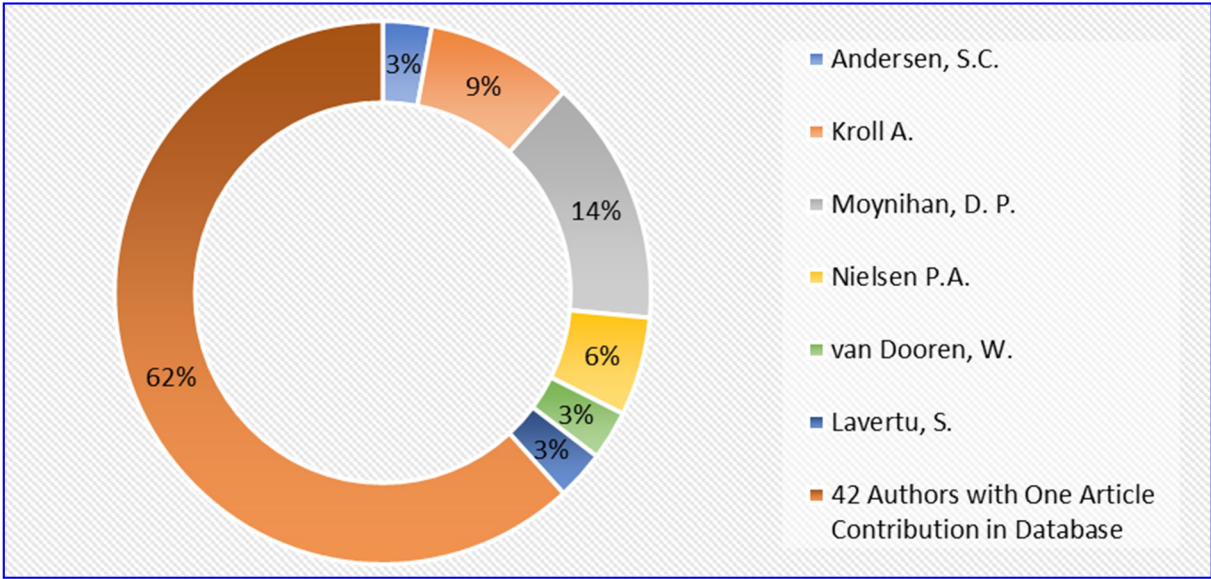


**Graph 2.** Percentage of Articles Published by Authors
**Source:** Own research

The 68 articles in the author database were written by 48 authors (see Graph 2). 42 authors (about 62%) had written only one article on performance information use in the public sector research topic. The main contribution is given by Moynihan, D. P. with 10 articles (about 14% of all articles in the database), followed by Kroll, A. with 6 articles (about 9%), Nielsen P. A. 4 articles (about 6 %), Lavertu, S., Andersen, S. C., and Van Dooren, W with 2 articles each, which make about 3% of all articles in the database).

These authors are co-authors with each other or other authors in the author database which increases their contribution to this research topic. This little analysis on affiliation location, the number of articles published by authors, and co-author status demonstrate that: a) Moynihan, D. P.; Kroll, A.; Nielsen P. A.; Lavertu, S.; Van Dooren, W.; Andersen, S. C. are continuously researching on-topic, unlike most researchers included in author' database (42) which are sporadically researching, b) a close collaboration occurs between the main North American and European scholars on performance information use in public sector issue.

The data analysis shows that most scholars who published articles on performance information use in the public sector were from the United States (about 41% of all authors), highlighting no relevant gap in articles published between North American authors and European authors (40% plus 5% the UK). Instead, only 4% of the studies were by Asian authors, 4% by Australian authors, 2% were from Africa, and 3% the studies were from South Korea.

As we mentioned above capturing empirical evidence important to find the gap in theory, about 26% *qualitative and* 74% *quantitative studies* were selected. We classified the analyzed articles as quantitative or qualitative. About 73,5% of articles used quantitative techniques based on primary data for about 63% of all articles for example articles by Moynihan and Ingraham (2003), Kim et al. (2019), Taylor (2011); secondary data for 22% as Moynihan et al. (2019), and mixed data for 8% as Geys and Sørensen (2018), Grossi et al. (2016). Instead, the remaining 26,5 % of articles used qualitative techniques including here the 7% of theoretical articles with no data for example Kroll (2015) and Moynihan and Hawes (2012).

**Table 3.** Quantitative analysis: Statistical technique

| Statistical techniques | Number | Percentage |
|---|---|---|
| Descriptive statistics | 30 | 38,46 |
| Ordinal least square (OLS) | 16 | 20,51 |
| Ordered logistic regression model | 5 | 6,41 |
| RD Model: regression discontinuity | 8 | 10,25 |
| Linear-regression models | 2 | 2,56 |
| Multivariate regression | 1 | 1,28 |
| Exploratory factor analysis (EFA) | 11 | 14,10 |
| Structural equation modeling (SEM) | 4 | 5,12 |
| Hierarchical regression analysis | 1 | 1,28 |
| **Total** | **78** | **100%** |

**Source:** Own research

Of the 74% of quantitative studies, about 63,49% have a survey study design, 15,87% used survey experiments, 4,76% were organized as semi-structured interviews, and 7,35% were organized as interview and documentary data each. Regarding the type of statistical techniques used, heterogeneity emerges, as it is shown in Table 3. Descriptive statistics about 38% together with Ordinal Least Square (OLS) 20% and exploratory factor analysis (EFA) 14,10% result as the most used statistical techniques for testing the performance information use in association with other variables.

### 3.2.  Results on Goal Ambiguity Topic

The analysis of 48 articles on the goal ambiguity topic enabled us to identify, as in Graph 3 below, that the articles contained in the author database were published from the year 1998 to 2019, so a time frame of 21 years rather than 35 years time frame applied by us in online source research databases, with a growing trend from the year 2011 and the highest number articles are published in the years 2012, 2014.
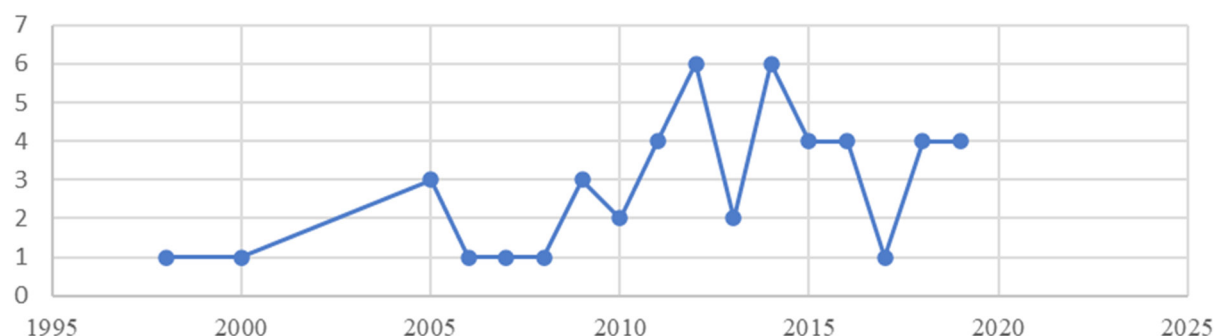


**Graph 3.** Articles Distribution Published Per Year (GA)

**Source:** Own research

The following table 4 provides a summary of the journals with the largest number of articles published. The database's articles were published in 17 different journals from which, 8 had published only one article, and the research on goal ambiguity is mainly published in journals such as the Journal of Public Administration Research and Theory 33,3 %, Public Performance & Management Review 10.41 %, International Public Management Journal 8,3 %. We found a clear prevalence of articles published in scientific journals localized in Europe (about 67%), and Australia 2%, while United States journals represent about 31 % of the total. This shows a significant difference in publishing interest between journals located in Europe and those located in the United States. This brief analysis demonstrates that the goal ambiguity use issue is still dominant (or more common) in European and United States journals and less relevant elsewhere.

**Table 4.** Distribution of Articles by Journal

| "GA" Journal Title | Number | Percentage | Journal Localization |
|---|---|---|---|
| Administration and Society | 3 | 6,25 | **America** |
| American Review of Public Administration | 2 | 4,2 | **America** |
| International Public Management Journal | 4 | **8,3** | **Europe** |
| International Review of Administrative Sciences | 2 | 4,2 | **Europe** |
| Journal of Public Administration Research and Theory | 16 | **33,3** | **Europe** |
| Public Administration | 2 | 4,2 | **America** |
| Public Administration Review | 3 | 6,25 | **America** |
| Public Management Review | 3 | 6,25 | **Europe** |
| Public Performance & Management Review | 5 | **10,41** | **Europe** |
| Journals with only one Article Published | 8 | **16,64** | **Both two continents** |
| **Total** | **48** | **100%** | |

**Source:** Own research
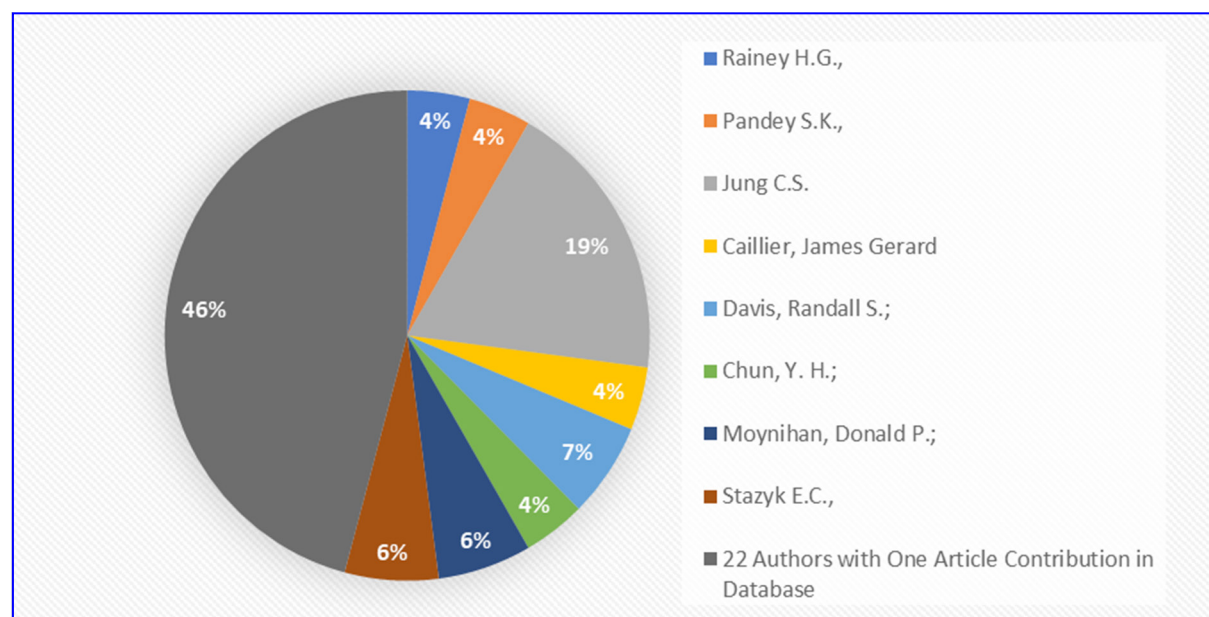


**Graph 4.** Percentage of Articles Published by Author
**Source:** Own research

The 48 articles in the author database were written by 30 authors (see Graph 4). 22 authors (about 46%) had written only one article on goal ambiguity in the public sector research topic. The main contribution is given by *Jung C.S.*, with 9 articles (about 19 % of all articles in the database), followed by Moynihan, Donald P.; Stazyk E. C., and Davis, Randall S. with 3 articles each, which make up about 6% each of all articles in the database.

The data analysis shows that most scholars who published articles on goal ambiguity in the public sector were from America (about 50% of all authors), highlighting a relevant gap in articles published between American authors and European authors (17% plus 2% in the UK). Instead, 21% of the studies were by Asian authors, and 10 % of the studies were from South Korea.

By comparing data concerning the localization of the journal and affiliation of the author, we found that studies realized by American, Asian, and South Korean authors tend to be published in European Journals.

We found substantial differences among size classes referring not only to the unit of analysis but also to the completion response rate. The authors until 100 units refer to units of analysis as "federal government agencies or public sector organizations" indicating the sample size, not to the persons that have filled the and create the response rate as the rest the of sample size. For example, Jung and Ritz (2014) refer to 89 Swiss federal government agencies; Verbeeten (2008) with 93 public sector organizations in the Netherlands and Jung and Lee (2013) with 36,926 federal employees' respondents.

**Table 5.** Quantitative analysis: Statistical technique

| Statistical techniques | Number | Percentage |
|---|---|---|
| Descriptive statistics | 13 | 24,5 |
| Ordinal least square (OLS) | 11 | 20,7 |
| Confirmatory factor analysis (CFA) | 5 | 9,5 |
| Structural equation modeling (SEM) | 9 | 17 |
| Hierarchical linear model (HLM) | 4 | 7,5 |
| Hierarchical regression analysis | 10 | 18,9 |
| Partial least squares (PLS) | 1 | 1,9 |
| **Total** | **53** | **100%** |

**Source:** Own research

About 93,75 % of articles in the author database used quantitative techniques based on 71% of the primary data of all articles, for example, articles written by Chun and Rainey (2005b), Davis and Stazyk (2015) and 23% of secondary data by Jung (2012). The 6,25 qualitative articles represent the 6% of articles classified as having no data.

Of the 93,75% of quantitative studies, about 81,3% have a survey study design, 2% were organized as interviews, and 16,7 % were organized as documentary data. Regarding the type of statistical techniques used, heterogeneity emerges (Table 5). Descriptive statistics about 24,5% together with Ordinal Least Square (OLS) 20, 7%, and Hierarchical regression analysis 18,9 % result in the most used statistical techniques for testing the goal ambiguity in association with other variables. The analysis showed a prevalence of studies of the origin of samples from American countries, representing 67% of the sample. European countries' studies represented only 23%, South Korea's 4 %, and Asia's studies represented 2% of the total sample.

## 4. DISCUSSION AND CONCLUSION

The main aim of this literature review was to review separately the literature on performance information use and goal ambiguity topic and identify the paper that studies both topics, to establish the nature of the relationship between goal ambiguity and performance information use variables. The articles were classified according to the variables used in the study design. To address this objective, we conducted an SLR of 116 papers on both performance

information use and goal ambiguity topics. From the selected papers the results clearly show that only 12 articles study both topics and establish a relationship between goal ambiguity and performance information use.

The relationships were different and were established as following by using: a) performance goals as a particular set of activities for performance information use, b) agency priority goals as the routines of goal clarification of GPRA Modernization Act that influences the performance information use, c) conditions of goal ambiguity (higher or lower level) alter the potential of performance data which are also ambiguous and effect budget and programs decision, d) number of goals affect the performance information referring to the coordination problem and prioritization, e) performance information use variable as impacting organizational performance and goal clarity to model the relationship because the performance is better in the presence of higher goal clarity, f) the independent variable goal clarity and self-management positively affect team performance, g) how transformational leadership have an indirect, positive effect on performance information use through its influence on goal clarity, using performance information use as a dependent variable or h) affirming that the control variable goal clarity does not display any significant relationship with role conflict and managers' use of performance information (dependent variable).

This perspective will help the authors to better understand the relationship between performance information use and goal ambiguity variables in Italian public sector organizations.

We believe that the results of our analysis may offer a clear synthesis of the recent and most remarkable advancements of academic research on the relationship between performance information use and goal ambiguity which could also be of interest to practitioners. Based on our results, policymakers can reflect on this relationship in their decision-making process to perform better.

Although this SLR was conducted rigorously, the potential limitation must be acknowledged. We limited the search process to peer-reviewed published articles written in the English language. Given the universal interest in performance information use and goal ambiguity topics, as shown in our review, studies published in other languages could enrich our discussion by adding to or contradicting some of its conclusions. Moreover, the selected inclusion and exclusion criteria may have led us to identify the final sample in ways that the other keywords and/ or other researchers may not have. In the future, scholars should start from this relevant basis to foster those new and emerging insights that currently are ready to be developed.

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## Apendix

**Table 6.** Inclusion and Exclusion Criteria

| No. | Inclusion criteria | Reasons for inclusion | Exclusion criteria | Reasons for exclusion |
|---|---|---|---|---|
| 1 | *Consider only peer-reviewed journal full-text articles published in English* | We chose to limit our sources to peer-reviewed journals because these can be considered validated knowledge and are likely to have the highest impact in the field (Podsakoff et al., 2005) | *We chose to not consider books, chapters in books, conference proceedings, working papers, and other unpublished works* | The team review had difficulties in ensuring the validation of quality knowledge |
| 2 | *EBSCO time frame: 01/01/1985 to 31/03/2020 and SCOPUS 1999 to 31/03/2020 published date* | The team review had a high exception to the contribution of scholars in this time frame | *Pre-1985* | With very few exceptions, contributions to goal ambiguity and performance information use topics started to be published before 1985. |
| 3 | *Boolean/phrase search mode with apply related words expanders were also used* | The Boolean complex search was constructed aiming at improving the efficiency of the search | *Compatibility* | Many articles that didn't fit our purpose were excluded since they weren't closely related to our research. |
| 4 | *Final and in the press publication stage* | The team review aimed to select as much of the relevant research in our two topics as possible. | | |
| 5 | *As subject areas on Scopus only: Social sciences, Business management and accounting, Medicine, Economics, Econometrics and Finance, Decision Sciences, Health Professions, Environmental Science* | According to the "fit for purpose" approach the team review determined that this subject area had substantial relevance. | *Theory robustness* | Articles provided poor literature and debate about our topics. |
| 6 | *Theoretical paper* | It provides contributions to be used in our research | *Implication for practice* | The articles did not provide enough information to implement the concepts presented. |
| 7 | *Quantitative and qualitative empirical studies* | They capture empirical evidence important to find the gap in theory | *Methodology, data supporting arguments* | The articles did not provide enough information to implement the concepts presented. |
| 8 | *Different counties contribution* | Ensure cross-country comparison | | |

**Source:** Own research

**Table 7.** Sample of Systematic Literature Review Evidence

| Authors | Moynihan D.P., Kroll A. | Moynihan D.P., Baekgaard M., Jakobsen M.L. | Lavertu S., Moynihan D.P. | Kroll A. |
|---|---|---|---|---|
| Theories Used | Government Performance and Results Act (GPRA) of 1993 | | Formal theory | |
| Key Concepts | Federal performance management initiatives, performance routines, Reforms as Routines, "cross-agency priority goals." | Performance management reform, goal-based learning, Reward and Control, Problem-Solving | Basic game-theoretic model, individual behavior, Empirical Implications of Theoretical Models | Nonroutine information, routine performance information, nonroutine feedback |
| Research Theme Focus | Modernization Act put in place a series of routines that established organizational conditions for greater use of performance data | Is it possible to engage professionals in performance regimes | The role of leadership commitment to reform in a staff's decision to use performance information | Conceptualization of nonroutine PIU based on a literature review and the first test against empirical data |
| Unit of Analysis | Mid-and upper-level federal managers | Danish hospitals: wards | Federal agency managers | Local government: middle managers |
| Country | USA | Denmark | USA | Germany |
| Sample Size | 24 | 16 | 24 | 130 |
| Study approach | Quantitative | Quantitative | Quantitative | Quantitative |
| Independent Variable | GPRA Modernization Act Routines: Cross-Agency Priority Goals, Agency Priority Goals | Performance information data for problem-solving, reward and control, education leadership, resource advocacy | Leadership Commitment | Sources of routine and nonroutine Information |
| Dependent Variable | Measures of performance information Use: Performance measurement, Program management, Problem solving, Employee management | Professional employee engagement, goal-based Learning | Performance information use | Nonroutine information, routine performance Information, |
| Control variable | | Gender, years at the ward, employed full time at the ward, position | | Manager-related variables, task-related variables, culture, and city-related variables |

**Source:** Own research

# Study on the Influence of Drucker's Thinking on Some Conceptualizations/Theories on the Role of Innovation in Firm Performance

**Ionela Beatrice Ipsalat[1]** (iD)

**Abstract:** *From an economic and social perspective, by innovation we mean bringing an element of novelty to technologies, modes of production, organization, or any other aspect by which an organized group of people or an individual contributes to social progress. From a historical perspective, social groups have always had recourse to improving how they have earned their living and have therefore had recourse to innovations of various kinds. In fact, it can be argued that the main determinant of innovation has been the need to address different categories of social needs. Peter F. Drucker has been referred to in the literature as the father of modern management, in the sense that his thinking has influenced dozens of aspects of theory and practice regarding the organization and performance of firms. Of the many ways in which Drucker's thinking has influenced management theory over the last half century, this study examines only the influence of his ideas on the role of technical and social innovation on human progress.*

## 1. INTRODUCTION

Innovations occur when any firm systematically monitors/observes competitors, new market entrants, or when it is noticed that some existing competitors in the market start to experience a decreasing annual profitability (LaPier, 1998). In such situations, the decision-maker in the performing firms will arrive at various questions such as "What novel elements do new entrants bring to the market that can explain the success of these firms from the entry phase?"; "What errors or shortcomings have occurred in the vision and innovative capacity of a competitor that is approaching bankruptcy?". Starting from such questions, the chance/probability that the firm will record its own directions in which it could direct its efforts to identify elements of small novelty related to organization, distribution, technologies, processes, etc. is greatly increased. One of the first renowned authors to analyze innovation in direct relation to entrepreneurship is Schumpeter, who considers that the 'engine' of capitalist economies is based on these two factors, namely: innovation and entrepreneurship which derive from the very essence of society, i.e. competition (Schumpeter, 1939). Simply put, Schumpeter argued quite well that it is the various elements of novelty brought about by the capitalist firm that set-in motion and ensure the success of a capitalist economy. The same author first discussed "creative destruction" as an essential factor explaining the evolution of capitalism (Schumpeter, 1942). There are different approaches and/or conceptions of innovation (Sudolska, 2016), its role, associated risks, skills and technologies developed, etc. in the international literature on the subject (Drucker, 1998). For example, Chesbrough admits that the ultimate role (Chesbrough, 2007) of the continuous innovation-oriented business model is to ensure that the technological core of the innovation delivers value to the customer (Chesbrough & Rosenbloom, 2002). According to Drucker's conception, innovations/inventions can be technical or social; both categories of innovations have ensured the progress of the Western world since the Industrial Revolution (1776) and until today

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(Burciu, 1999). As Drucker points out in his work Innovation and the Entrepreneurial System, one of the main sources of innovation and/or invention is given by the need faced by the firm at a given time in the usual competition that exists in any market; we should not confuse innovation and invention vs. scientific discovery, argues the same author (Drucker, 2001).

## 2.    RESEARCH METHODOLOGY

The methodology of this research is based on a literature review of works of interest dealing with the role/importance of innovation on human progress; mainly we have carefully analyzed some of Peter Drucker's best-known books/studies but also other articles/books published in the last four decades in the literature. This has tried to highlight the basic idea of the present study, i.e. to empirically assess to what extent Drucker's basic concept of innovation is directly/indirectly reflected in other works published since the 1980s and up to the present. For a better understanding of the academic notions in the first part of this article, Drucker's views on the sources of innovation are schematized in graphical form. The data were collected with the help of the Web of Science database and further processed by the Vosviewer program. The software program is designed to create maps based on network data and to visualize them. It can be used for the analysis of all bibliometric data (Van Eck & Waltmar, 2014), such as citation relationships between publications or journals of co-occurrence between scientific terms (Van Eck & Waltmar, 2011). The Web of Science is an area of the WoK (Web of Knowledge) that contains much more information. The Vosviewer program is of interest to academic circles because one can build bibliome maps of different authors, and different journals based on citations/co-citations (Van Eck & Waltmar, 2010). The data collection was done by using filters (of interest for this paper, these filters are called topics) „Drucker" and „innovation*". The role of the „*" sign at the end of the word is that the platform recognizes results that are in the plural form (innovations). Besides these topics, the results *Review Articles* and *Early Access* were excluded so only *Articles* and *Proceedings Papers* were selected as results. Using these algorithms and filters, 86 results were found. Bibliometric methods are mainly used for academic purposes and are mainly used to evaluate certain themes/topics that have been debated or analysed distinctly in the international literature (Mongeon & Paul-Hus, 2016). In our study, we used two distrinsic methods to assess the influence of Drcuker's thinking on the theories/conceptualizations of innovation published during the last four decades respectively: In the first stage in the literature review section, we have analyzed in more depth Drucker's contribution on the role of innovation on human progress. This stage can be called *empirical* research on the influence of Drucker's thinking on the concepts of other authors who have developed volumes and articles on innovation. In a second phase (see section results and discussion), which ran in parallel, we used an exploratory research based on Vosviewer, the two phases were correlated in time sequence. Exploratory research based on science mapping tools. It is understood that subsequently the results of the two research meta-models were cross-evaluated.

## 3.    SYSTEMATIC LITERATURE REVIEW

Today's organisations, but especially the organisations of the future, will operate in an uncertain, highly competitive and complex business environment. Their profitability and reliability will depend solely on the efforts made by the organisation, in particular on the strategic thinking at top management level (The Drucker Foundation, 1997). Along with various other competencies, any organisation needs one particular core competency: *innovation* (Drucker, 2010). Broadly speaking, innovation is seen as a source of competitive advantage in a changing

environment. Some management theorists argue that innovation is a primary determinant of organisational performance (Crossan & Apaydin, 2010). In fact, innovative capacity in firms and/ or other types of organizations is dependent on the quality of human resources, knowledge accumulation and similar assets on which innovation is based. Drucker outlines the idea that every organisation must have an important competence, namely *innovation*. Organisations need to identify a way to record and evaluate their innovation performance (Drucker, 2004). This key competence on which any firm relies is reflected in the more recent literature by a much more complex concept, namely 'core competencies'. For any firm or other type of organisation that aims to be innovative, there are certain conditions, according to Drucker, the most important of which are the following three (Drucker, 1993): innovation is clearly continuous work; innovators must build on their strength; innovation has an effect on both the economy and society, it changes the way people work/produce. There are therefore sufficient reasons to briefly mention the seven sources of innovation, according to Drucker's view:

- There are four internal sources (as graphically schematized in Figure 1) of innovative activities in firms, in the sense that these sources are sufficiently visible to CEOs, managers and other employees within the organization; the four internal sources are: *the unforeseen*, i.e. the context in which sources of unforeseen success or failure are generated, including when social or other crises manifest themselves outside the organisation (market, industry, etc.). In this respect, we have some relevant examples that have remained in the history of management as a reference for today's companies. A first example is the Du Pont company and nylon, in 1928 an employee of the company left a mixture on a (Burciu et al., 2008) register nylon as an invention. Another example is the Matshushita company as it foresaw that people from poor backgrounds, including rural areas, would be able to purchase a television; therefore, the company started to sell by the door-to-door method. This is how they exploited the unexpected success in this market (Burciu et al., 2008); Incongruence, i.e. the gap that periodically arises in the life of a firm between the realities that exist in the market or in society (in reality) and the realities that are perceived by CEOs, managers, opinion leaders (a discrepancy arises between what actually exists and how this reality is perceived by an organisation). In this sense, Drucker notes two types of incongruence, as follows (Burciu et al., 2008): incongruity between perceived reality and true reality and inconsistency between a supplier's values and/or expectations and/or customer values/expectations. *Innovation based on the necessity of the process based on criteria such as*: an independent process, a "weak" or "absent" link, a clear definition of the objective, a clear definition of the specifications of the solution, awareness that "there must be a better way" i.e. responsiveness (Burciu et al., 2008). In the sense invoked we have two types of innovations: *Innovations based on imposed necessity*; an example of this is the redesign of the linotype for letter picking by Mergenthaler O. who in 1884 designed a linotype based on mechanical letter selection. *Innovations influenced by demographically driven need*; in 1909 the Bell Telephone System company noted the future growth of the population concluding that the population would require a very large need for telephone operators. It therefore designed the first automatic telephone exchange. *Innovation that exploits changes in industry structure* are highly effective if the industry and markets concerned are dominated by one or more large manufacturers or suppliers. In this respect, we cite two benchmark examples of two companies still operating today (Burciu et al.,2008): Henry Ford noted in 1908 that the automobile would be a commodity purchased from all walks of life, so he designed the Model T and innovated its mass production. This proved to be a real success; Durant W. He founded General Motors in 1908 by acquiring automobile companies and integrating them into an innovative, successful company and a real competitor in the automobile market.

- There are also three main sources of innovation in firms in the sense that these sources are generated by factors external to the firm's internal environment, the sector of activity, social, economic or other crises that may occur internationally; the three external sources are: *demographics*, i.e. trends in the structure of the population over longer periods (for example, in all developed countries there is currently a trend towards an ageing population, which means that millions of working people are moving from this category into the 'third age' social category; the values and preferences of such social categories must remain in the focus of companies that aim to be innovative). A major example is the employment of young women graduates in various fields by Citibank in the 1970s (Burciu et al., 2008). *Changes in receptiveness and understanding*, occur periodically at the societal level, particularly as a result of changing values at large social group levels, extensive use of disruptive technologies, political changes, etc. For example, health care has made possible the emergence of new markets: herbal pharmacies, healthy restaurants, nutrition books, etc. (Burciu et al., 2008). *New knowledge*, scientific and non-scientific, remains a major source of innovation for firms and other types of organisations; innovation based on such knowledge usually takes longer (in connection with this source of innovation Drucker discusses the systematic work that firms need to organise in connection with R&D activity). Innovation based on new knowledge Drucker also calls the "superstar" of the entrepreneurial system; it requires the longest lead time. These are the innovations that have made history, whether scientific, technical or social.

Following the seven main sources of innovation that Drucker discusses, Figure 1 shows a graphical summary that "integrates" and distributes the seven sources throughout a firm's organisation chart:
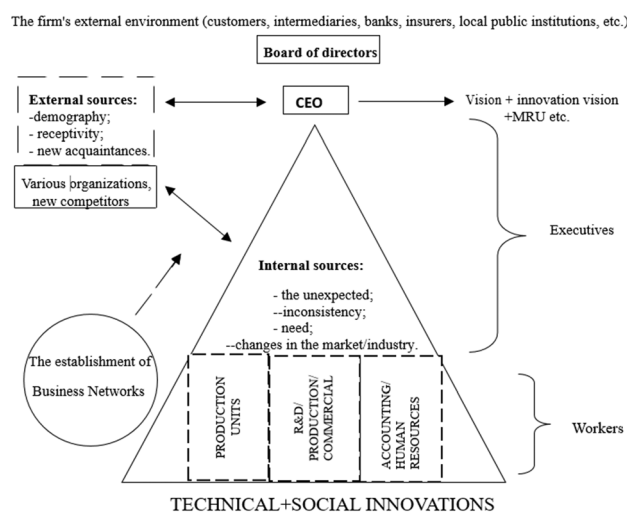


**Figure 1.** Distribution of the sources of innovation identified by Drucker
for the whole organisation chart
**Source:** Elaborated by the author based on Drucker, 1993, pp.30-37, p. 69

Those summarised in Figure 1 provide a clear picture, as Drucker sees it, of how sources/contexts are distributed with respect to innovative processes in firms. Where appropriate, the seven sources of innovation relate to some of Drucker's recommendations/ideas as follows (Drucker, 1993):

- Innovative activity in successful firms is *systematic*, in the sense that there is a unified vision at the top of the organisation chart and many people systematically look for novel and/or social elements that could be turned into invention/innovation. We find this idea formulated by Landes with regard to the moment of the emergence of the Industrial Revolution

in Europe and what he calls "the invention of invention" (the rise of the West started from the moment when innovative activity became routine based on several institutions, values, and social reforms concerning education) (Landes, 2013).

- *Innovation based on a genius idea,* also called by Drucker "flashes of genius"; these kinds of innovations cannot be replicated, taught, or learned because there is no real way a person can learn how to become a genius (Drucker, 2010). This type of innovation, however, occurs extremely rarely in a firm's business (less than 10% of all successful innovations), but the vast majority of successful innovations in a firm are based on a unified vision, intention, analysis, and systematic effort by the entire organization.
- To be effective and lead to significant results, Drucker argues, an innovation must be simple and focused on a single thing or process (Drucker, 2010).
- Successful innovation should aim from the outset at leadership in that field and/or concerning a product/process; this is a prerequisite for some of the successful innovations of firms to be proven later on in the market and in society to be disruptive in the sense of Christensen's arguments (Christensen, 1997).

## 4. RESULTS

The bibliometric analysis was carried out with Vosviewer software using the Web of Science databases. Based on these we created 3 maps with different topics (Co-occurrence of Keywords Plus, Co-citation of Cited References and Co-occurrence of All keywords). The number of results from the filters was 86 for the period 1998-2023. The number of results arises from selected filters:
- For the topics part the keywords "Drucker" and "innovation*" were used;
- Results from Review Articles and Early Access were excluded as sources of results;
- As period the results from 1998 to.

In order to observe the evolution of the results, using Web of Science to extract the data, we have summarised the number of publications over the years in the form of a graph:
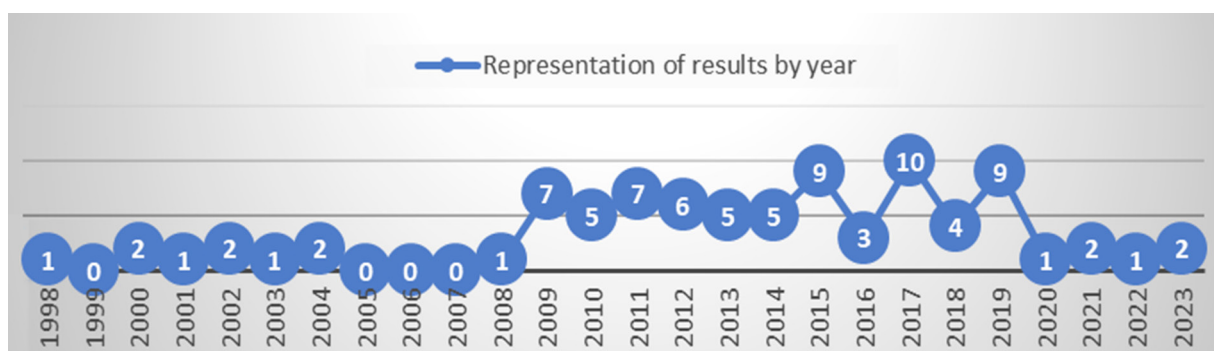


**Figure 2.** Representation of results by year
**Source:** Processes by author with Web of Science

Analysing Figure 2 it can be seen that the peak of the number of publications (using topics "Drucker" and "innovation*") is 2017 with a number of 10 publications. At the opposite pole are the years 1999, 2005, 2006 and 2007 with zero publications. With a small number of results more precisely only one result represents the years: 1998, 2001, 2003, 2008, 2020 and 2022. Research Areas from which information has emerged are 27 as follows: Business Economics (with 51 results), Information Science Library Science (with only 9 results), Education Educational Research and Social Sciences Other Topics (each with 8 results), Engineering (totals 6 results),

Computer Science and Operations Research Management Science (each with 5 results), Public Administration (with 4 results), Science Technology Other Topics (with 3 results), Environmental Sciences Ecology, Geography and Government Law (each with 2 results), Agriculture, Arts Humanities Other Topics, Chemistry, Communication, Endocrinology Metabolism, Energy Fuels, Geology, Instruments Instrumentation, Literature, Mathematical Methods In Social Sciences, Mining Mineral Processing, Pediatrics, Philosophy, Psychology (each with 1 result).
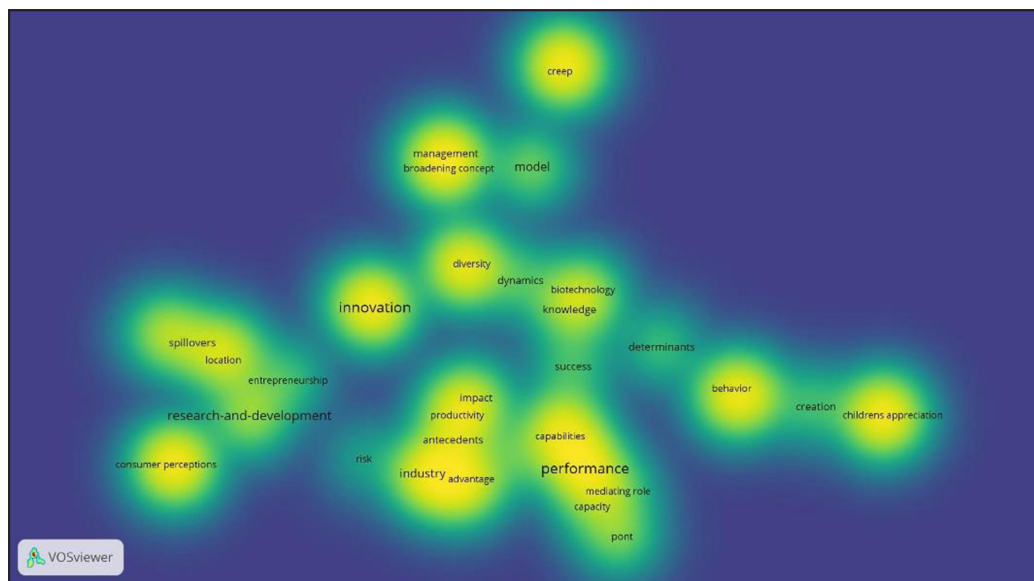


**Figure 3.** Co-occurrence of Keywords Plus with topics "Drucker" and "innovation*"
**Source:** Processes by author with Web of Science, processed with VOSviewer

Given the subject chosen, it is understandable that Business Economics gives a percentage of 59.3%. Information Science Library Science (10.46%) and Education Educational Research and Social Sciences Other Topics (each at 9.30%) also scored considerably.

Analysis of keywords co-occurrence is the bibliometric method used to map the field of research. Through this map (Figure 3) an analysis of co-occurrence and a clustering of high frequency keywords is performed. In the first map (Figure 3) using the *Co-occurrence of Keywords Plus* coupling method the keywords innovation, performance, capabilities, industry, management are highlighted. This means that the vast majority of papers published between 1998 and 2023 on innovation, performance, capability or management implicitly refer to Drucker's concept of innovation. For this map, 149 keywords were identified. For each of the 149 keywords, the total strength of the co-occurrence links it was calculated. Keywords with the highest total link strength were selected. The most weakly highlighted words are: insights, intuition and time.



**Figure 4.** Co-citation of Cited References with topics "Drucker" and "innovation*"
**Source:** Web of Science, processed with VOSviewer

Co-citation is the frequency with which two documents are cited together in other documents. If at least one other document cites at least two documents jointly, these documents are defined as co-cited. Cited References are those articles/books included in a bibliography, in references, cited papers, etc. In the second map (Figure 4) the coupling method Co-citation of Cited References and For the minimum number of citations of a cited reference the number "2" has been selected. For each of the 133 cited references, the total strength of co-citation links with other cited references was calculated. The cited references with the highest total link strength were selected.



**Figure 5.** Co-occurrence of All keywords with topics "Drucker" and "innovation*"
**Source:** Web of Science, processed with VOSviewer

In the third map (Figure 5) the Co-occurrence of All keywords coupling method was used. For each of the 407 keywords, the total strength of co-occurrence links with other keywords was calculated. The keywords with the highest total link strength were selected. In this map, the words: innovation, management, knowledge, performance are highlighted. At the opposite pole are the keywords: teaching entrepreneurship, open source software and effective thinking. Few authors have succeeded in developing entirely new concepts about the role of innovation on human progress and the importance of innovation in any type of business organization. Among such authors, we mention the concept of open innovation developed by Chesbrough (2003) during the last two decades. Among the various developments/interpretations of Drucker's concept of the importance of innovation and human progress, we mention some concepts or ideas that have achieved a certain individualisation over time (even if there are also overlaps in terminology and content):

a)  Schumpeter's idea of creative destruction is mentioned by Drucker but developed by Christensen (1997) and others as disruptive innovation and has become a separate topic.

b)  The phrase "creative imitation" extends Drucker's terminology and highlights some of the realities of global competition with regard to the imitations that some competitors can bring and technological competition, how to exploit patents, etc.

c)  The phrase "smart innovation" also refers to some of Drucker's ideas that discuss brilliant ideas that rarely occur in business.

d)  The distinction between radical vs. incremental innovations refers to the approach of the firm as a socio-economic system and the inclusion in the analysis of the elements of novelty but also of differentiation that an innovation/invention brings.

## 5. FUTURE RESEARCH DIRECTIONS

Future research directions may include other opinions expressed by other authors on this topic, and the contribution of other authors to the topic of *innovation* is of interest. In addition to the limitations of each research including bibliometric methods, this study does not cover Review Articles and Early Access and only English language papers were selected. Therefore these selection criteria may leave out contributions (books/articles in languages other than English) that add value to the field.

## 6. CONCLUSION

Investment in innovation by firms directly determines the competitive position of the organization and its chances of survival in the market in the long term. Market trends are constantly changing, and firms that are not prepared to innovate/invent/discover systematically will not be able to compete with market giants that invest human and financial resources in these processes/activities. All three processes require skilled employees, hard and constant work (except for accidental discoveries) and risk. Peter Drucker has written on many subjects and thus generated new ideas, and is therefore also called the father of modern management. Beginning with his seminal work "Practice of Management" in 1954 in which he popularized the idea of management by objectives (MBO). In the same sense, Drucker is the first person to use the terms privatization, share-based society and post-modernism. He was also the first to formulate concepts of Japanese management and business strategy. Drucker was also the first person to predict the impact of computers on the world. There are many reasons why Peter Drucker is a reference in management, business and capitalist society. In the context of the study, in addition to his contributions to management, marketing and economics, Peter Drucker also developed important theories for innovation and entrepreneurship. In a narrow sense in the context of innovation, the author argues that innovation must be a systematic process managed with discipline. Innovation cannot depend entirely on flashes of genius, (which happen occasionally) it must be a planned, organised process with constant effort. The study shows that Drucker's contributions remain embedded in modern management theory. To date, there are still no other authors who have changed the theories conceived by Drucker.

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# Strategic Management in the Selected Organization

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**Abstract:** *The paper focuses on Strategic Management in the Selected Organization. The paper aims to perform an analysis of strategic management in a pre-selected healthcare facility (organization) in the Czech Republic. Furthermore, the paper is based on secondary data. This information is important for the creation of individual methods that were implemented and analyzed in the paper. As part of the paper, the authors evaluated the primary data, which involves the implementation of a strategic management analysis in a pre-selected medical facility. Among the strategic management methods used by the authors, it is primarily an analysis of the external and internal environment together with a SWOT analysis (plus/minus matrix). Conclusions and recommendations are drawn up at the end of the paper.*

## 1. INTRODUCTION

Today's methods of strategic management are shaped by various perspectives and theories. In general, it can be said that strategy is closely associated with the long-term goals pursued by an organization. The strategy represents and predetermines not only current but also future activities, encapsulating the fundamental idea of how the company's objectives will be realized and achieved. Non-profit organizations occupy a unique position in the economic environment. The reason for their indispensability is simple: the goal of a non-profit organization is not to achieve profit but rather to transform the lives of individuals and subsequently contribute to society.

The term "healthcare facility" refers to the provision of health services. Healthcare services are provided by healthcare facilities, which can be established by either the state, municipalities or by individuals and legal entities. Healthcare centers within the territory of the analyzed country (the Czech Republic) can be divided according to the founder into state-owned and non-state-owned facilities. The state founder is the Ministry of Health of the Czech Republic, while the non-state founder can be a region, city, municipality, church, or legal and natural persons. Healthcare represents an important part of most households' budgets. A stylized fact is that older individuals in most countries tend to have greater healthcare needs and, depending on the level of health insurance and other social protections, are likely to have higher healthcare expenditures than households with younger members, all else equal (de Meijer et al., 2013; Yang et al., 2003; Zweifel et al., 2004). In their study, Skrabal et al. (2023) wrote about healthcare expenditure in C5 countries.

The paper aims to perform an analysis of strategic management in a pre-selected healthcare facility (organization) in the Czech Republic. The provided paper is structured as follows: Following the Introduction, the second chapter researches the literature review of the given topic. The

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third chapter outlines the methodology of the paper. Subsequently, the fourth chapter focuses on the empirical findings obtained by the authors. Finally, there is a structured Conclusion where all significant information of the paper is evaluated.

## 2. LITERARY RESEARCH

Management has been defined as the process, comprised of social and technical functions and activities, occurring within organizations to accomplish predetermined objectives through human and other resources (Longest et al., 2000). Implicit in the definition is that managers work through and with other people, carrying out technical and interpersonal activities to achieve the desired objectives of the organization. Others have stated that a manager is anyone in the organization who supports and is responsible for the work performance of one or more other people (Lombardi et al., 2007). Management positions within healthcare organizations are not confined to the top level, because of the size and complexity of many healthcare organizations, management positions are found throughout the organization. Manager positions exist at the lower, middle, and upper levels; the upper level is referred to as senior management (Thompson et al., 2021). Healthcare organizations employ a wide array of clinical, administrative, and support professionals to deliver services to their patients (Buchbinder & Buchbinder, 2021).

Strategic workforce planning in health and social care has been described as the technical process of anticipating the demands for care and the staff who must provide it (Lopes et al., 2015). Willis et al. (2018) noted the healthcare workforce is complex and planning approaches need to capture such complexity not only in terms of the myriad of factors at play within systems but also to account for the uncertainty of factors and extended timeframes over which planning needs to occur. Strategic planning is coordinated with the organization's longer-term plans and typically occurs over a two-to-five-year period with a focus on the quality and size of the workforce (Strategic Workforce Planning Tool, 2014). Increasingly integration within and between health and social care has been identified as essential for future health and social care provision around the world (National Academies of Sciences, Engineering and Medicine, 2019; The Commonwealth Fund, 2020). Definitions of strategic workforce planning in health and social care must account not only for its technicality and complexity, multi-factorial elements including their combinations, and timeframes but also for a sustainable workforce of integrated services uniting health and social care (Sutton et al., 2023).

Quality is a strategic differentiating tool for maintaining a competitive advantage. Improving quality through the improvement of structures and processes leads to a reduction in waste, rework and delays, lower costs, higher market share and a positive image of the company (Lagrosen & Lagrosen, 2005; Rahman, 2001). The result is improved productivity and profitability (Alexander et al., 2006). Therefore, it is very important to define, measure and improve the quality of health services (Mosadeghrad, 2014). Defining and measuring the quality of health services is even more difficult than in other sectors. However, the quality of health services depends on the service process and the interaction between the customer and the service provider (McLaughlin, 2006; Mosadeghrad, 2012).

The quality management system can be perceived as a set of interacting activities, methods and procedures used to monitor, control and improve the quality of care (Wagner et al., 2013, 2014). Components of the quality management system at the hospital level include, for example, quality monitoring by the Board of Directors, implementation of quality policy documents, formal

protocols and analyses and improvement of processes and output measures (Vogus et al., 2010; Singer & Vogus, 2013; Wagner et al., 2014). Strong management support – from top management to department management to unit-level clinical leaders – is a key factor in the successful implementation of a quality management system (Abdallah, 2014). The introduction of a quality management system changes previously established mechanisms and procedures, induces structural changes and supports effective organizational processes that support communication, coordination and the continuity of patient journeys (van Harten et al., 2000). Over the past few decades, there has been a sharp increase in interest among healthcare organizations and scientists about the role of organizational culture in improving hospital performance (Lee et al., 2021). Quality in health care is a fundamental goal of health policy, and policy makers around the world put quality improvement at the top of their agendas (Busse et al., 2019; Øvretveit et al., 2002; Gadolin & Andersson, 2017). A description of studies focusing on the slimming of management in the healthcare sector was described by Skrabal (2022).

## 3. METHODOLOGY

This chapter focuses on the methodology of the paper. Based on the set goal: The paper aims to perform an analysis of strategic management in a pre-selected healthcare facility (organization) in the Czech Republic, the following are the methods that the authors carried out in the given paper (text below).

A healthcare facility located in the Czech Republic was selected. Among the methods used in evaluating the strategic analysis of the organization, the following can be mentioned: PEST analysis (analysis of the external macro-environment), Porter's Five Forces model (analysis of the external micro-environment), analysis of internal resources of the organization, and SWOT analysis (Strengths, Weaknesses, Opportunities, and Threats), including plus/minus matrices and matrices of model strategies.

The provided information regarding data obtained from strategic analysis can be regarded as a subjective evaluation of both the external and internal environments, as well as combinations thereof. It's worth noting that even though it's a subjective assessment, without the information gathered from the organization's environment by the author of the paper and subsequently analyzing annual reports, these methods and evaluations could not have been conducted at all.

## 4. STRATEGIC MANAGEMENT IN THE SELECTED FACILITY

The subsequent chapter (Chapter Three) focuses on the interpretation of individual methods outlined in the preceding chapter. The first method implemented is the analysis of the organization's external macro-environment, specifically using the PEST analysis method.

From the political-legislative perspective, it is crucial to monitor current developments both in governmental and legal spheres. The issuance of new regulations and laws cannot be influenced, and therefore organizations must adapt to new decrees, laws, and regulations. Regarding the economic aspect, it is primarily important to monitor the inflation rate, as this indicator has a significant impact on the organization. In terms of social attributes, it is desirable to keep in mind that there is currently a growing trend in the number of elderly individuals - population aging, which may result in a shortage of beds in the organization in the coming years, as well as a greater increase in demand for skilled workers, etc. Technological equipment in homes

facilitates the lives of seniors and provides them with contact with their loved ones. For the organization, technology represents easier functioning in both client and organizational structures. Waste management is an integral part of operations.

The next method conducted by the authors of the paper is Porter's Five Forces model, primarily focusing on the analysis of: Threat of new entrants, Competitive rivalry, Threat of substitutes, Bargaining power of buyers, and Bargaining power of suppliers.

Within the current organization, there are existing competitors. In the case of new entrants into the industry, it represents a less risky situation for the subject because establishing a new organization in the market requires compliance with numerous legislative regulations, involves significant capital requirements, etc. Currently, the bargaining power of buyers is limited due to full capacities in similar organizations. Entities have limited choice of provider because sponsors already pre-determine suppliers with whom the facilities have contracts for purchases. Although home care and personal assistance services can be considered substitutes for these organizations, they cannot fully replace this form of care. Entities of this type offer continuous 24-hour care and provide comprehensive services that are not always available with home care or personal assistance. Additionally, from a financial perspective, the level of costs for organizations may vary, reflecting the different values of the services provided.

When analyzing the internal resources of the organization, the following methods were listed in the paper: Financial resources analysis and Intangible resources analysis.

In terms of financial resource analysis, it is worth noting that the provision of social services, including operating nursing homes for seniors, relies on multi-source financing, primarily due to: subsidies from the budgets of the Ministry of Labor and Social Affairs of the Czech Republic, contributions from the budgets of the Olomouc Region – non-investment contribution, grants from other providers, revenues from main activities, and other income sources. Furthermore, basic indicators were analyzed (self-sufficiency and liquidity). Self-sufficiency – the indicator values achieve positive results; thus it can be concluded that the organization is self-sufficient. Liquidity – current liquidity slightly falls below the recommended level during the observed period. Immediate liquidity shows a growing trend during this period. The organization operates above the recommended value, indicating no financial issues for the organization. As for the analysis of intangible resources within the organization, these mainly consist of patents, know-how, software, and trademarks. The analyzed entity is a subsidized organization; therefore, it can be stated that it does not have any intangible resources due to its nature.

Based on the comparison of the external and internal analysis, a SWOT analysis was performed, based on the "plus/minus matrix" and "model strategy matrix" methods. The table below presents the main key factors for conducting a SWOT analysis.

Table 1 shows the attributes of the SWOT analysis in the given organization. Each quadrant has the same number of factors and has its name, from the number 1-5.

Figure in the form of a table (Figure 1) shows the complete evaluation of the plus/minus matrix of the SWOT analysis. Based on the given table, it is necessary to explain the given evaluation method. Each attribute was named according to the initial word of the analyzed factor. Furthermore, a number (1-5) was assigned in the individual quadrants. The resulting table is shown

above (Table 1). Subsequently, the factors were evaluated against each other (one factor from a column with a factor from a row). If a strong mutually positive relationship was found between the given attributes, it was rated "++" (two pluses). In the case when there was a weaker positive connection between the variables, it was evaluated with the value "+" (one plus). If there is no mutual relationship, then with the value "0" (zero). On the other hand, if a weaker negative link was demonstrated between the attributes, it was evaluated with the value "-" (one minus). For strongly negative two-way bonds, the given rating is "--" (two minus). Furthermore, column and row values were added. The summarizing values are shown in the given tabulation as well as the subsequent order of the evaluated attributes for individual quadrants. The final evaluation of the attributes is as follows: Strengths: Satisfaction of clients and their families (S5); Weaknesses: Lack of employees (W1); Opportunities: New funding sources (ESF, sponsors) (O2) and Cooperation with clients' families and surrounding municipalities (O4); Threats: Employee departure – burnout syndrome (T2). Even if the given attributes tell us what the strengths and weaknesses are (internal analysis) as well as opportunities and threats (external analysis), it is necessary to do another analysis from the position of the company's structure and its future development or make a matrix of model strategies.

**Table 1.** SWOT analysis of the selected organization

| Strengths | Weaknesses |
|---|---|
| Sustained demand for service (S1) | Lack of employees (W1) |
| Modern equipment and technology (S2) | Limited bed capacity (W2) |
| Variety of activation activities (S3) | Higher price for services (W3) |
| Secured funds (S4) | Home location/availability (W4) |
| Satisfaction of clients and their families (S5) | Low number of volunteers (W5) |
| **Opportunities** | **Threats** |
| Strengthening the level of services provided (O1) | Legislation (T1) |
| New funding sources (ESF, sponsors) (O2) | Employee departure - burnout syndrome (T2) |
| Population aging (O3) | Rising inflation – financial instability of clients (T3) |
| Cooperation with clients' families and surrounding municipalities (O4) | Increasing administrative burden for employees (T4) |
| Individual care (O5) | The threat of a pandemic (T5) |

**Source:** Own processing

| | | Strengths | | | | | Weaknesses | | | | | Sum | Ranking |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | S1 | S2 | S3 | S4 | S5 | W1 | W2 | W3 | W4 | W5 | | |
| Opportunities | O1 | ++ | ++ | + | ++ | ++ | - | -- | - | - | + | 5 | 2. |
| | O2 | ++ | ++ | ++ | ++ | + | -- | - | + | - | + | 7 | 1. |
| | O3 | ++ | ++ | + | 0 | ++ | -- | -- | ++ | + | -- | 4 | 3. |
| | O4 | + | + | ++ | ++ | ++ | - | - | + | - | + | 7 | 1. |
| | O5 | ++ | + | 0 | ++ | ++ | -- | -- | -- | - | - | -1 | 4. |
| Threats | T1 | + | - | + | + | 0 | - | 0 | - | 0 | - | -1 | 5. |
| | T2 | -- | 0 | - | - | - | -- | - | -- | - | -- | -13 | 1. |
| | T3 | - | 0 | - | - | 0 | - | - | -- | - | - | -9 | 3. |
| | T4 | -- | - | - | - | 0 | -- | - | - | - | - | -11 | 2. |
| | T5 | -- | - | 0 | 0 | -- | - | 0 | 0 | - | - | -8 | 4. |
| Sum | | 3 | 5 | 4 | 2 | 6 | -15 | -11 | -5 | -7 | -6 | | |
| Ranking | | 4. | 2. | 3. | 2. | 1. | 1. | 2. | 5. | 3. | 4. | | |

**Figure 1.** Plus/minus matrix of the SWOT analysis of the given organization

**Source:** Own processing

Figure 2 shows a matrix of model strategies. Below is the procedure for creating a given matrix. Based on the mentioned attributes in the SWOT analysis (Table 1), a score from 0-10 was added to each factor (zero is the lowest rating, ten is the maximum rating). In the next step, the given quadrants were summarized, the quadrant of strengths and opportunities was evaluated with a plus value, and the quadrant of weaknesses and threats was evaluated with a negative value. Subsequently, the given values were entered into the diagram. Next, this step was taken where the value of the strengths was taken, the value of the weaknesses was subtracted from this value, and the final value was plotted on the horizontal axis (value 6). From this, it is evident that the strengths outweigh the weaknesses of the given organization. A similar procedure was implemented for opportunities and threats, where the value of opportunities was subtracted from the value of threats. The resulting value (16) was plotted on the vertical axis. Here it can be stated that the opportunities outweigh the threats. Based on these calculations, it can be stated that the resulting strategy of the company is offensive. According to Jenco and Lysa (2018), an offensive strategy is also sometimes called an offensive strategy, which assumes focused action in achieving the organization's goals. According to Srpova et al. (2010) within the framework of this strategy, it encounters several opportunities in the vicinity and at the same time, it is able to offer many strengths that support the use of these opportunities. The result of favorable circumstances should be a growth-oriented or aggressive strategy. This strategy represents an offensive approach from a position of strength and is understandably the most desired situation. Based on the authors of Fotr et al. (2012) offensive strategy results from the possible positive development of risk factors and opens up space for growth strategies.
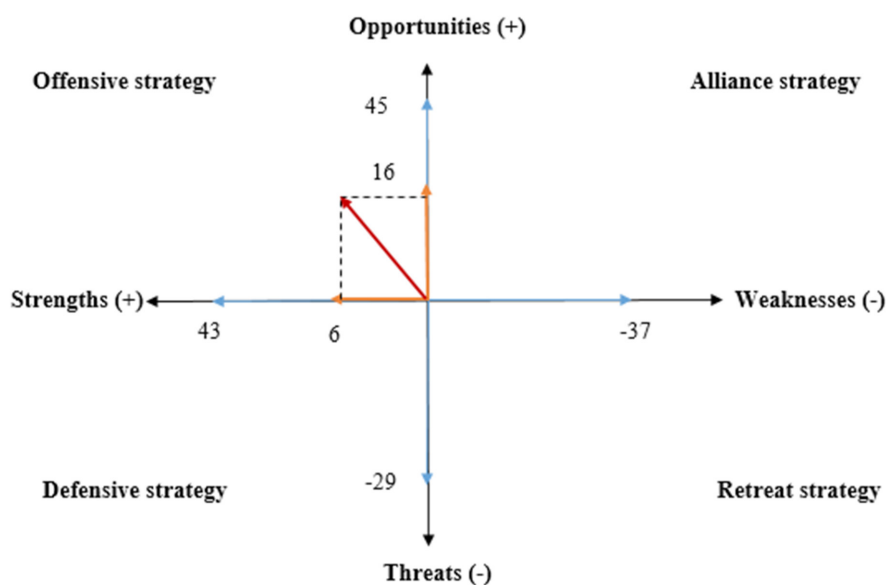


**Figure 2.** Matrix of model strategies of the given organization
**Source:** Own processing

The mentioned chapter focused on the interpretation of individual methods within the framework of strategic analysis. For the external analysis, an evaluation of the PEST analysis was carried out, where it is important to mainly monitor legislative regulations, selected economic indicators (inflation), monitor the trend and demand of new clients and, above all, focus on new technologies that make life easier for clients and provide them with contact with loved ones. Another method that was implemented in this paper was Porter's five forces model. There are current competitors, there is a high capital intensity of the organization. The bargaining power of customers is limited due to the full capacities of similar organizations. Subsequently, it was found that the entities have a limited choice of provider, because the founders already determine in advance the suppliers with

whom the given organizations have contracts for purchases. The internal analysis used the following methods: analysis of financial resources and analysis of intangible resources. For financial sources, the funding of the organization was indicated. Furthermore, indicators of autarky and liquidity (current, immediate) were evaluated. In the case of autarky, the value indicators achieve positive results, so it can be concluded that the given organization is self-sufficient. Current liquidity is at the monitored level slightly below the recommended value. Instant liquidity shows an increasing trend in a given organization. The values for the organization are above the recommended value, which does not indicate any financial problems of the analyzed entity. Subsequently, a SWOT analysis (plus/minus matrix) was performed and the following significant attributes were identified: Strengths: Satisfaction of clients and their families; Weaknesses: Lack of employees; Opportunities: New funding sources (ESF, sponsors) and Cooperation with clients' families and surrounding municipalities; Threats: Employee departure – burnout syndrome. Based on this, a matrix of model strategies was made. For a given organization, strengths outweigh weaknesses and opportunities outweigh threats. In the case of the analyzed subject, an offensive strategy was adopted, which opens up space for growth strategies.

## 5. CONCLUSION

The paper focused on the evaluation of strategic management in a pre-selected medical facility. The paper aimed to perform an analysis of strategic management in a pre-selected healthcare facility (organization) in the Czech Republic. Based on the given results, it can be stated that the organization has a good position within the framework of management and has a good direction for development and growth in the market. The mentioned methods can also be applied to other medical facilities of a similar format since a complete analysis of the external and internal environment was carried out. Sophisticated methods were performed. Furthermore, a comprehensive evaluation of the SWOT analysis matrix was carried out, which contributed to the evaluation of the individual attributes of the given quadrants and subsequently to the evaluation of the company's strategy. An important aspect of this paper is to state that the authors of the study also had limitations, namely that they focused on one type of medical facility. Furthermore, an essential part of carrying out the given analysis is to also do primary research, when the method of questioning using the questionnaire survey technique is best suited. The authors of the paper are currently conducting research in the given organization. The next paper will focus on the evaluation of primary research and comparison with other health organizations.

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# The Knowledge Management and the Readiness Frontier Technologies. A Quality Management Approach Analysis

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**Abstract:** *This study investigates the relationship between knowledge management and frontier technology readiness using a quality management framework. The methodology includes (1) collecting global data on knowledge management and technology readiness indices; (2) summarizing the ISO 30401 knowledge management system; and (3) employing inferential statistics, including regression and correlation analyses, to identify connections. Findings quantitatively demonstrate a significant link between technology and knowledge management, emphasizing the necessity of modern technologies and ISO standards—particularly ISO 30401—for achieving a competitive advantage. The study recommends that companies integrate ISO standards with technological advancements to enhance innovation, improve customer service, streamline operations, and strengthen economic resilience during and after crises.*

## 1. INTRODUCTION

In today's fast-changing technological landscape, integrating knowledge management and quality management is crucial for organizational success. This study uses quantitative methods and regression analysis to examine the link between the Frontier Readiness Technology Index and the Knowledge Management Index. By analysing various data sources, including research articles and online libraries, demonstrates how effective knowledge management practices can enhance technological readiness. Implementing standards like ISO 30401 can provide competitive advantages, emphasizing collaboration among stakeholders to strengthen the connection between technology and knowledge. This synergy is essential for improving living standards and ensuring long-term competitiveness. The intersection of knowledge management and technology fosters innovation in products, services, and business models. Economic theory underscores the need for effective processes and structures in both sectors, especially concerning technology and resource management. As interest in quality-driven cultures and ISO standards increases, organizations are adopting frameworks like ISO 30401 to promote continuous improvement and innovation, particularly in the post-COVID business environment.

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## 2. LITERATURE REVIEW

Regardless of a country's degree of economic development, research on knowledge management, technology, quality, ISO standards, quality culture, and other relevant areas has increased globally in the present. This is because, in situations when supply is noticeably more than demand, the concepts of knowledge, knowledge management, technology, technical output, quality, quality management, and ISO standards, when applied effectively, increase the competitiveness of both public and private businesses in an open market, one of the main characteristics of the global economy throughout the previous fifty years.

### 2.1. Knowledge and its Relations with Technology

The transition between industrial revolutions is a key focus for economies worldwide, shaping policy-making and fostering competitive advantage through benchmarking and analysis. Knowledge and technology activities are vital for businesses, driving innovation and helping them adapt to changes and uncertainties. This approach enhances skills and competencies crucial for sustainable economic performance, supporting the UN Sustainable Development Goals and resilient infrastructure. To achieve their goals, businesses must adopt effective knowledge management strategies (ISIEM 2020, International Afnor, 2019, PHPKB 2020, CDN 2019, BSI 2019). While knowledge management aims to empower individuals to create and use knowledge, the field remains complex, requiring clear frameworks and understanding to maximize its impact on organizational success.

### 2.2. What Knowledge Management Is?

Knowledge management (KM) is the systematic process of identifying, capturing, and utilizing knowledge to enhance organizational performance and innovation. It encompasses practices that help organizations leverage intellectual assets, improve decision-making, and foster continuous learning. Nonaka and Takeuchi (1995) emphasize the importance of converting tacit knowledge—personal insights—into explicit knowledge that can be documented and shared, which enhances collaboration and adaptability in a changing environment. Research indicates that effective KM initiatives lead to better outcomes, such as increased efficiency and innovation. Alavi and Leidner (2001) found that successful KM practices provide a competitive advantage by enabling firms to quickly respond to market changes and seize new opportunities. Additionally, KM systems that integrate technology with organizational culture promote knowledge sharing and collaboration among employees, facilitating a free flow of knowledge (Davenport & Prusak, 1998). Therefore, the strategic implementation of KM practices is crucial for organizations aiming to sustain growth and enhance performance in today's complex business landscape.

### 2.3. The Importance of Knowledge Management

The gathering, sharing, and transformation of knowledge are essential for driving innovation within a business, as noted by the International Business Standards. Knowledge is co-created by managers and employees, enhancing productivity and competitive advantage through improved accessibility and professional development. Organizations can no longer rely on spontaneous knowledge sharing; they must intentionally create, acquire, apply, and repurpose knowledge to adapt to rapid environmental changes. For geographically dispersed and decentralized organizations, sharing techniques and expertise across boundaries is especially beneficial. High turnover can result

in the loss of critical knowledge held by specialists, making effective information management vital for collaboration toward common goals. Knowledge is an intangible asset that must be developed, organized, shared, preserved, and utilized to address problems and inform decisions. A holistic approach to knowledge management supports current operations and drives development strategies, requiring integration across various organizational roles (Rhem, 2018; Powell, 2020).

## 2.4. ISO 30401 – Knowledge management system

In 2018, ISO introduced ISO 30401, a standard for Knowledge Management Systems. The standard mandates that organizations implement a management system focused on knowledge and information management to enhance value creation across the business. ISO 30401 offers guidelines for establishing, utilizing, maintaining, assessing, and continuously improving the knowledge management process within an organization (ISO, 2018). About this field, further, ISO standards are:
- 30415, HRM,
- 30422, development and learning process,
- 30424, Management of knowledge.

The management of business process issues is intimately correlated with innovation, knowledge, and technical production.

## 2.5. GII Report on Knowledge

Knowledge is related to both the output of technology and knowledge, as stated in the GII 2021 study. In this article, we only looked at the relationships between innovation and knowledge and technology outputs (GII, 2021). The GII 2021 report considers the development of knowledge and technology as a result of three factors: (1) knowledge generation, (2) knowledge impact, and (3) knowledge diffusion (Szmodics, 2018).

The GII report considers the generation of knowledge about the patent origin (GII, 2021): Filed patents at the National Patent Office, Origin of patents PCT, Applications of PTCs, Origin of models of Utility, Applications registered at the patent's office under RUM, Scientific and technical articles, Number of scientific and technical journal articles, Articles published in science and technology, Citable documents H-index.

At knowledge impact, the report considers (GII, 2021): Labour productivity growth, GDP Rate of growth / employed persons, new business entities, New density of business, Spending on Softs, Certificates of ISO 9001 issued, Manufacturing of high-tech.

At knowledge diffusion, the report considers (GII, 2021): Receipts of intellectual property, Production/export complexity, Exports of high-tech, and Export of ICT services.

## 2.6. Readiness Frontier Technology

Readiness Frontier Technology (RFT) encompasses the emerging technologies organizations must adopt to stay competitive in a digital landscape. This includes advanced technologies like artificial intelligence, blockchain, and the Internet of Things, which can transform business operations and enhance customer interactions. Westerman et al. (2014) note that organizations

integrating these technologies can improve operational efficiency and create new value propositions. The RFT concept emphasizes the need for organizations to assess their current capabilities and readiness to leverage these technologies, ensuring responsiveness to market demands and technological disruptions. Beyond technology adoption, RFT requires a strategic approach to change management and workforce development. Brynjolfsson and McAfee (2014) highlight that successful implementation depends not only on technologies but also on organizational culture and workforce skills. This focus on technology and human capital fosters an agile mindset, promoting innovation and adaptability. By prioritizing RFT, organizations can navigate the complexities of digital transformation, enhancing resilience and securing a sustained competitive advantage in the marketplace (Rogers, 2016).

## 2.7. Readiness Frontier Technology Index

The United Nations Conference on Trade and Development (UNCTAD, 2022) published the "Technology and Innovation" report in 2022, serving as a guide for developing strategies and regulations for adopting cutting-edge technologies. The report introduces the "Country-Readiness Index," which ranks participating economies based on their capacity to adopt, utilize, and adapt "frontier technologies" in a fair manner. This ranking is based on five key elements (UNCTAD, 2022).

### 2.7.1. ICT Infrastructure Deployment

ICT Infrastructure Deployment refers to the level of technological infrastructure necessary for leveraging internet-based technologies like blockchain, IoT, big data, and AI. It includes two components: the overall internet accessibility for the population and the quality of internet service, measured by mean download speed. The UNCTAD (2022) study emphasizes that a strong internet infrastructure is crucial for the effective utilization of these technologies.

### 2.7.2. Skills

The adoption of frontier technologies requires skilled individuals, with skills gained through formal education and practical training. Skill levels in the labour market are measured by high-skill employment statistics, including managers and professionals, alongside the expected years of education. However, in developing countries, the "brain drain" phenomenon may indicate that actual skill levels are lower than official figures suggest (UNCTAD, 2022).

### 2.7.3. Research & Development

Research and Development (R&D) is vital for both developing and adapting cutting-edge technologies to local needs. R&D activity is assessed through the number of publications and patents in frontier technologies, with a focus on recent years. However, unofficial R&D efforts may not always result in publications or patents, potentially underrepresenting the true scope of activity (UNCTAD, 2022).

### 2.7.4. Industry Activity

This component captures current industry activities related to the adoption and adaptation of advanced technologies, focusing on early adopters in ICT, banking, and high-tech manufacturing.

The analysis uses export data from high-tech manufacturers and digitally deliverable services. However, informal sector firms, prevalent in many developing countries, may skew the statistics, leading to an underrepresentation of actual activities (UNCTAD, 2022).

### 2.7.5. Finance

This aspect examines private sector financing options, as better financial access can accelerate the adoption of advanced technologies. It evaluates domestic credit to the private sector as a percentage of GDP, reflecting the resources available from various financial institutions. However, this measure may not fully capture non-traditional lenders or innovative financial products. The data from these five sub-indices contribute to calculating the Readiness Frontier Technology Index (UNCTAD, 2022).

## 2.8. On relations between knowledge management and readiness frontier

The relationship between Knowledge Management (KM) Ranking and Readiness Frontier Technology (RFT). Ranking is essential for understanding how organizations leverage knowledge assets to adopt advanced technologies. Effective KM practices enhance the capture, dissemination, and application of knowledge, fostering an environment conducive to innovation and competitiveness in a rapidly evolving technological landscape. As noted by Alavi and Leidner (2001), robust KM processes improve organizational capabilities, directly influencing readiness to embrace frontier technologies. High KM scores often indicate a deeper understanding of emerging technologies, aligning with De Almeida and Sampaio's (2020) assertion that a solid KM framework is crucial for navigating technology adoption complexities. Conversely, the RFT Ranking reflects an organization's preparedness to integrate cutting-edge technologies, relying heavily on its foundational knowledge assets. Research by Bhalerao and Ramesh (2019) emphasizes that organizations prioritizing KM are better positioned to assess and deploy frontier technologies, enhancing innovation capacity. This synergy between KM and RFT underscores the need for a holistic management approach that encompasses both knowledge and technology readiness, as discussed by Paskaleva and Mahr (2020). Strategic KM initiatives can lead to improved outcomes in technology adoption, with previous research indicating a positive correlation between KM practices and readiness for adopting frontier technologies.

1. **Correlation Studies**: A study by O'Sullivan et al. (2019) found that organizations with a high KM maturity level exhibited a 35% increase in technology adoption rates compared to those with lower KM capabilities. This suggests that effective KM can significantly enhance an organization's readiness for new technologies.
2. **Impact on Innovation**: A survey conducted by KPMG (2021) revealed that 74% of organizations that invest in KM report improved innovation outcomes, which correlates with enhanced technology readiness. The data indicated that firms prioritizing KM strategies are more likely to be early adopters of frontier technologies.
3. **Quantitative Analysis**: In a quantitative analysis by Zaim et al. (2018), organizations that implemented robust KM systems scored, on average, 20% higher on technology readiness indices than those that did not. This analysis suggests a direct link between KM investments and enhanced technological preparedness.

These statistics indicate a strong relationship between effective KM practices and an organization's ability to adopt and leverage frontier technologies.

## 3. RESEARCH FRAMEWORK, THE PURPOSE OF THE CASE STUDY

The study framework was provided by the links in the global and international ecosystem between the Knowledge Management Ranking/Index and the Readiness Frontier Technologies Ranking/Index. This study employs a theory-building technique to look at the following research problems in light of the dearth of algebraic, statistical, and numerical reasoning on the relationships between the RFT Index and the Knowledge Management Ranking/Index:
- Ho: The RFT Ranking/Index and the Knowledge Management Ranking/Index are unrelated to one another.
- H1: The Knowledge Management Ranking/Index and the RFT Ranking/Index are strongly correlated.

### 3.1. Methodology

Prior empirical research has recognized the importance of links or correlations between ISO standards, particularly ISO 30402, Knowledge Management, and ready frontier technologies; however, also provided statistical evidence to support the existence of these interactions. Thus, theory development supported by research and analysis is required. The greatest technique to completely understand a phenomenon and allow for a more in-depth analysis of theoretical frameworks is to combine the exploratory method with a single-depth case study methodology.

### 3.2. Case selection

When choosing the scenario, three primary criteria were considered: a theoretical approach, the application of relationships' real benefits on the Knowledge Management Ranking/Index, and linkages between the RFT Ranking/Index and the Knowledge Management Ranking/Index. Three stages made up the case project: (1) identifying the needs for knowledge management, (2) identifying the needs for technology usage, and (3) identifying the knowledge management and RFT rankings by nation.

### 3.3. Data collection

The Knowledge Management rating/Index was created using data from the GII Report 2021, an annual assessment of countries based on their knowledge qualities. The RFT Index is derived from the UNCTAD Report 2022.

### 3.4. Data analysis

Knowledge management and RFT ranking variables were correlated and regressively evaluated across 129 countries using inferential statistics. The relationships between the Knowledge Management Ranking/index (ISO 30401) and RFT Index are strong, supporting the H1 hypothesis, which states that "There is a strong relation between the Knowledge Management Ranking/Index and RFT Index," as opposed to the Ho hypothesis, which states that "There is not a strong relation between it and the RFT Index." We developed and ran a regression between the Knowledge Management Ranking/Index and the Readiness Frontier Technology Ranking/Index.

**Table 1.** List of nations determined by the Readiness Frontier Technology Index and the Innovation Index.

| No | Country | KMR* | RR** | No | Country | KMR* | RR** | No | Country | KMR* | RR** |
|----|---------|------|------|----|---------|------|------|----|---------|------|------|
| 1 | Albania | 103 | 85 | 44 | Greece | 52 | 38 | 87 | N. Macedonia | 57 | 73 |
| 2 | Algeria | 125 | 98 | 45 | Guatemala | 90 | 104 | 88 | Norway | 28 | 19 |
| 3 | Argentina | 73 | 65 | 46 | Guinea | 132 | 153 | 89 | Oman | 107 | 74 |
| 4 | Armenia | 64 | 83 | 47 | Honduras | 118 | 122 | 90 | Pakistan | 71 | 123 |
| 5 | Australia | 42 | 12 | 48 | HongKong | 62 | 15 | 91 | Panama | 113 | 67 |
| 6 | Austria | 19 | 22 | 49 | Hungary | 20 | 37 | 92 | Paraguay | 117 | 102 |
| 7 | Azerbaijan | 115 | 100 | 50 | Iceland | 25 | 30 | 93 | Peru | 87 | 89 |
| 8 | Bahrain | 82 | 56 | 51 | India | 29 | 43 | 94 | Philippines | 24 | 44 |
| 9 | Bangladesh | 92 | 112 | 52 | Indonesia | 74 | 82 | 95 | Poland | 36 | 28 |
| 10 | Belarus | 37 | 59 | 53 | Iran | 46 | 71 | 96 | Portugal | 34 | 32 |
| 11 | Belgium | 17 | 11 | 54 | Ireland | 15 | 8 | 97 | Qatar | 79 | 72 |
| 12 | Benin | 131 | 139 | 55 | Israel | 6 | 20 | 98 | Moldova | 54 | 81 |
| 13 | Bolivia | 112 | 116 | 56 | Italy | 18 | 24 | 99 | Romania | 35 | 45 |
| 14 | BIH | 66 | 80 | 57 | Jamaica | 95 | 96 | 100 | Russia | 48 | 27 |
| 15 | Botswana | 101 | 111 | 58 | Japan | 11 | 18 | 101 | Rwanda | 96 | 133 |
| 16 | Brazil | 51 | 41 | 59 | Jordan | 76 | 64 | 102 | S. Arabia | 69 | 50 |
| 17 | BruneiDrl | 130 | 69 | 60 | Kazakhstan | 86 | 62 | 103 | Senegal | 88 | 118 |
| 18 | Bulgaria | 27 | 51 | 61 | Kenya | 65 | 105 | 104 | Serbia | 43 | 47 |
| 19 | BurkFaso | 106 | 148 | 62 | Korea RD | 8 | 7 | 105 | Singapore | 13 | 5 |
| 20 | C. Verde | 122 | 101 | 63 | Kuwait | 60 | 58 | 106 | Slovakia | 30 | 36 |
| 21 | Cambodia | 111 | 113 | 64 | Kyrgyzstan | 102 | 115 | 107 | Slovenia | 32 | 33 |
| 22 | Cameroon | 98 | 132 | 65 | Laos | 127 | 127 | 108 | S. Africa | 61 | 54 |
| 23 | Canada | 23 | 14 | 66 | Latvia | 45 | 40 | 109 | Spain | 26 | 21 |
| 24 | Chile | 58 | 49 | 67 | Lebanon | 91 | 63 | 110 | Sri Lanka | 68 | 86 |
| 25 | China | 4 | 25 | 68 | Lithuania | 49 | 39 | 111 | Sweden | 2 | 4 |
| 26 | Colombia | 72 | 78 | 69 | Luxembrg | 38 | 16 | 112 | Switzerland | 1 | 2 |
| 27 | C. Rica | 56 | 61 | 70 | Madagascar | 99 | 130 | 113 | Tajikistan | 80 | 143 |
| 28 | C. d'Ivoire | 110 | 131 | 71 | Malawi | 84 | 137 | 114 | Thailand | 40 | 46 |
| 29 | Croatia | 47 | 52 | 72 | Malaysia | 31 | 31 | 115 | Tanzania | 100 | 138 |
| 30 | Cyprus | 21 | 34 | 73 | Mali | 94 | 141 | 116 | Togo | 128 | 129 |
| 31 | Czech Rep | 12 | 26 | 74 | Malta | 44 | 35 | 117 | Trnd&Tbg | 83 | 75 |
| 32 | Denmark | 14 | 10 | 75 | Mauritius | 93 | 77 | 118 | Tunisia | 55 | 60 |
| 33 | Dmnc. Rep | 108 | 95 | 76 | Mexico | 53 | 57 | 119 | Turkey | 50 | 55 |
| 34 | Ecuador | 97 | 90 | 77 | Mongolia | 85 | 110 | 120 | Uganda | 105 | 128 |
| 35 | Egypt | 70 | 87 | 78 | Montenegro | 78 | 70 | 121 | UK | 10 | 3 |
| 36 | Salvador | 124 | 106 | 79 | Morocco | 67 | 76 | 122 | Ukraine | 33 | 53 |
| 37 | Estonia | 22 | 29 | 80 | Mozambq | 116 | 149 | 123 | UAE | 59 | 42 |
| 38 | Ethiopia | 81 | 150 | 81 | Myanmar | 89 | 121 | 124 | Uruguay | 63 | 68 |
| 39 | Finland | 5 | 17 | 82 | Namibia | 119 | 91 | 125 | USA | 3 | 1 |
| 40 | France | 16 | 13 | 83 | Nepal | 121 | 109 | 126 | Viet-Nam | 41 | 66 |
| 41 | Georgia | 75 | 79 | 84 | Netherlands | 7 | 6 | 127 | Yemen | 126 | 156 |
| 42 | Germany | 9 | 9 | 85 | N. Zealand | 39 | 23 | 128 | Zambia | 120 | 134 |
| 43 | Ghana | 104 | 103 | 86 | Nigeria | 123 | 124 | 129 | Zimbabwe | 109 | 136 |

\*  Knowledge Management Ranking
\*\*  Readiness Ranking

Source: Authors based on GII (2021) and UNCTAD (2022)

To verify the relationship between these two elements, we build their graph: Where **x** (independent dimension) is Readiness Ranking, while **y** (dependent dimension) is Knowledge Management Ranking. The graphical regression study depicted in the graph below demonstrates the high correlation or relationship between the RFT Index and the Knowledge Management Ranking/Index.
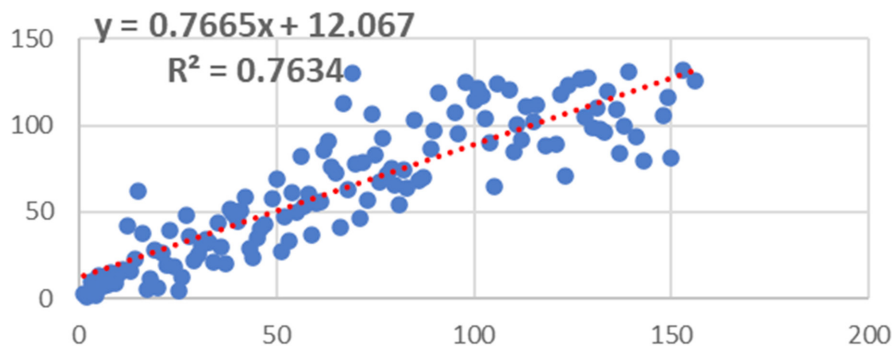


**Graph 1.** Correlation between the Knowledge Management Ranking/Index and the RFT Index

**Source:** Own research

Based on the graph, we build the regression equation of these sizes, which is of the linear type **y= ax+b**, increasing if a is positive:

$$y = 0.7665x + 12.067$$

where **a=0.7665**, while **b= 12.067**.

It shows that as increases by one unit, y increases by a factor of **0.7665**.

To show that this relationship expressed by this equation is statically verified, we raise the following hypotheses:

**H0**: coefficients a and b are equal to zero (a=0, b=0) with probability α=0.05. So, there is no relation between these two sizes.

**H1**: coefficients a and b are different from zero (a≠0, b≠0) with probability α=0.05. So, there is a relationship between these two sizes that is expressed by the regression equation y = 0.7665x + 12.067.

For this, a regression analysis using Ms. Excel's Data Analysis program was handled, from which results in the Table 2 provide statistical information on the connections/relationships between the Knowledge Management Ranking/Index and RFT Ranking/Index.

The regression equation comes out as above:

$$y = 0.7665x + 12.067 \ (y=ax+b),$$

where: **x= Readiness Ranking** and **y = Knowledge Management Ranking,** while **a=0.7665** and **b=12.067 (intercept).**

**Table 2.** Statistical information on the connections/relationships between the Knowledge Management Ranking/Index and RFT Ranking/Index

| SUMMARY OUTPUT | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Regression Statistics* | | | | | | | |
| Multiple R | | | | | | | 0.873754 |
| R Square | | | | | | | 0.763445 |
| Adjusted R Square | | | | | | | 0.761583 |
| Standard Error | | | | | | | 18.57649 |
| Observations | | | | | | | 129 |

**ANOVA**

| | *df* | *SS* | *MS* | *F* | *Significance F* |
|---|---|---|---|---|---|
| **Regression** | 1 | 141441.8 | 141441.8 | 409.87 | 1.42E-41 |
| **Residual** | 127 | 43825.9 | 345.1 | | |
| **Total** | 128 | 185267.7 | | | |

| | *Coefficients* | *Std Error* | *t Stat* | *P-value* | *Lower 95%* | *Upper 95%* | *Lower 95%* | *Upper 95%* |
|---|---|---|---|---|---|---|---|---|
| **Intercept** | 12.067 | 3.1077 | 3.8829 | 0.000165 | 5.9173 | 18.2166 | 5.9173 | 18.2166 |
| **KMR*** | 0.7665 | 0.0379 | 20.2453 | 1.42E-41 | 0.6916 | 0.8414 | 0.6916 | 0.8414 |

\*    Knowledge Management Ranking

**Source:** Own research

From this analysis, it results that since **p-value =1.41E-41<0.005** (coefficient a is different from zero) and **p-value= 0.000165 <0.05** (coefficient b is different from zero) the **Ho hypothesis falls, and remains hypothesis H1,** i.e. there is a relationship between these quantities which is expressed by the equation:

**y = 0.7665x + 12.067**
**(Readiness Ranking= 0.7665x + 12.067 Knowledge Management Ranking)**

This is also confirmed by Fisher's test Flog = 409.87 >1.42E-41.

## 4.    FUTURE RESEARCH DIRECTIONS

### 4.1.  Theory and Practice Implications

About the theory, a new line of inquiry has been opened up based on the research's conclusive findings about the relationships between technology use and knowledge management in the context of a quality management approach. Specifically, these relationships concern the RFT Index and the ISO 30401 standard family (Knowledge management family of standards), both of which are acknowledged as tools for improving living standards worldwide.

### 4.2.  Limitations and further research

A substantial number of RFT Ranking/Index and Knowledge Management Ranking/Index data were used in this study, which produced statistics on the subject of these relations for the first time. To confirm whether these relationships will only get stronger in the future and whether RFT and knowledge management are effective tools for attaining a competitive advantage, more study is necessary.

## 5. CONCLUSION

1. Given the limited availability of natural resources and the restrictions on unrelenting economic growth, innovation in product quality, knowledge management techniques, and technology all contribute significantly to the overriding of resource constraints.
2. There is a tendency for knowledge management to save scarce resources. If technology is to be fixed-factor saving, then it should not be severely impeded by fixed factors.
3. Looking at this from a broader microeconomic angle as well, SMEs must adopt a positive mindset when it comes to knowledge management, technology use, quality control, and enhancing the company environment in order to gain a competitive edge. This study broadens our understanding of innovation and technology use in general. It is advised that a proposed framework with quality management relations be developed and validated through more research in order to inform future managerial strategies in practical settings.
4. Businesses can enhance operations, procedures, and processes through the ISO 30401 standard, which also helps economies throughout the world have a competitive edge during and after crises. A regressive analysis has verified the theoretical relationship between the knowledge management index and the ready frontier technologies index.
5. The study concludes that ISO standards and quality management concepts are useful and effective tools that should be used by all relevant parties, including individuals, public and commercial organizations, decision-makers, and civil society, in order to attain and maintain sustainable development scenarios. For all parties involved, maintaining and strengthening the current relationships and exchanges between technology use and knowledge management should be of utmost importance.

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# Analyzing Consumer Attitudes Towards Religious Marketing Among the Visitors of Krishna-Conscious Communities in Europe

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**Keywords:**
Religious marketing;
Consumer attitude;
Krishna Consciousness

**Abstract:** *Religion and marketing are two concepts rarely discussed in the same context. Still, spreading beliefs has always been fundamental to religious communities; and nowadays more and more religious groups turn towards modern forms of marketing, such as online and social media marketing, to gain more followers. Research findings are contradictory on how consumers react to the promotion activities of religious groups: while some studies account for a high level of consumer rejection towards religious marketing, others find that there is a level of understanding towards religious communities. This research aims to study and discuss the consumer attitudes of the visitors of Krishna-conscious communities in Europe concerning marketing religions on a sample of 330 respondents. The research findings have shown that there are consumer groups with variable attitudes towards different aspects of promoting religion, including promotion and tourism, product sales, economic activities, and credibility.*

## 1. INTRODUCTION

Religious marketing, though it has existed for many years, started to emerge only a few decades ago. But researchers, such as Kotler and Levy (1969) have pressed the need for widening the concept of marketing to not only entities on the competitive market, but also areas, such as public matters, arts, and also religion (Cutler, 1992; Kotler, 1980; Kotler & Levy, 1969; Kuzma et al., 2009). Yet, even in a globalized, capitalistic society, religious marketing remains a sensitive topic with a lot of pro and contra arguments towards religious communities engaging in any form of economic activity. Still, the practices show that religious marketing does exist, and has existed ever since the emergence of religions, but sometimes even those doing it in practice deny the existence of it (Juravle et al., 2016; McGraw et al., 2011).

## 2. THEORETICAL BACKGROUND

If we have a look at the case from a practical perspective, religious markets fit into the definition of the market, where 'present and potential consumers' (Kotler & Levy, 1969) might also be interpreted as current and potential future members of a religious community. In this market, religious communities offer certain sets of beliefs, which fit the definition of product, and also different services. Since these activities are mostly free of charge, or only donations are required, this takes us to non-profit organizations, that also engage in marketing, let's just think about WHO or Greenpeace. If religious organizations are also non-profit entities, why would they be different in their operations, including marketing activities?

The reason for still denying the existence of religious marketing by many lies in the history and nature of religion. Historically, in one community, country, or region only one religion was

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accepted, and individuals had no chance to practice any other. Still, in these times, the reigning religion has also communicated with the public and promoted certain activities or events, but this is normally not regarded by people as marketing. Also, according to the general attitude, religion is a sacred, ethereal concept, and there is a belief that it is independent of any material things. Research has shown that some segments of the public believe that religions engaging in marketing or for-profit activities undermine the credibility and the sacredness of a church. Examining this belief, again, from a practical perspective, we can, of course, not expect religious communities to survive without any money, since bills need to be paid, and those maintaining the community also have to make ends meet. For this, they need followers and funding (Andok et al., 2023; Attaway et al., 1997; Bence-Kiss, 2021; Kuzma et al., 2009; McGraw et al., 2011).

Lately, the attitude towards religious marketing of both the public and the members of religious communities has slightly changed. The main argument for these changes is the one mentioned above: the need for survival in a material world. McGraw et al. (2011) suggest that a lot depends on the way religious communities communicate, especially when they collect donations for something. If the communication suggests asking for material benefits, people will be more likely to oppose it. However, if the aim is maintenance or charitable activity, a higher level of openness can be expected. Mulyanegara et al. (2011) have highlighted how important market orientation and image building is for churches. They should, like any company, fulfill the needs of people, which sometimes means changes and adaptation to modern technologies. Juravle et al. (2016) also suggest the importance of keeping up with modern society and adapting to consumer needs for survival and success (Bence, 2014; Bence-Kiss, 2021; Juravle et al., 2016; Lázár Kovács, 2017; McGraw et al., 2011; Mulyanegara et al., 2011; Sükösd, 2017).

Furthermore, Einstein (2008) has found that now is the time for religious communities to change, since society has changed a lot in the past decades, while many religions have remained the same. She drew attention to the danger of religions becoming outdated if they cannot transform, and meet the needs of nowadays' people (Einstein, 2008; Juravle et al., 2016; Woodhead et al., 2002).

Mannerfelt (2022) has studied digitally mediated preaching as a new form of practicing religion and found that after slight skepticism and reluctance from pastors, the system started to work better and better, and has also become more welcomed by the public. Campbell (2017, 2020) focused on the means of practicing religion digitally, including AR and VR technologies and memes. She has raised attention to the dangers emerging from these phenomena, such as extremism, racism and stereotypes, but drew attention to the possibilities of supporting practicing religions with the help of new technologies rather than battling the inevitable development. Andok et al. (2023) studied the presence of religions in the media, especially new media and the presence of content creators, either voluntary or employees of a media company. Their study has not only confirmed the supporting role of new media towards religion but also distinguished certain categories of content creators, who may contribute to the appearance of religions online and reaching the wider public (Andok et al., 2023; Campbell, 2017, 2020; Mannerfelt, 2022).

## 3. RESEARCH METHODOLOGY

The research participants were specifically selected based on one criterion: having visited one of the eighteen communities dedicated to Krishna Consciousness in Europe. Given that Krishna Consciousness is still a relatively new religious movement in Europe, this criterion was required to reach respondents. Paper-and-pencil surveys in the English language had been distributed to

communities around Europe, and Hungarian language questionnaires were also accessible in the largest, Hungarian community. Volunteers were available to assist respondents to get over obstacles like understanding and language problems. The research was carried out in the summer tourist season of 2019 (May-September).

The questionnaire was filled by 667 respondents, however, due to being part of a larger research, only 330 valid responses were gathered for this section, other respondents had to be filtered due to incomplete answers. 66.5% of the respondents were female, 28.9% female and 4,5% preferred not to specify. The majority of the respondents were between the ages of 36 and 65 years (36-45: 20.2%; 46-55: 21.0%; 56-65: 19.8%). Only 1.0% of the respondents were younger than 18 years, 5.2% between 19 and 25, and 9.0% between 26 and 35. 23.5% of the participants were 66 years of age or above. The majority of the respondents had a high level of education: 45.4% owned university or college degrees, 33.1% graduated from high school, 11.5% from vocational school and only 4.5% had elementary school education, while 5.4% preferred not to disclose their education level. Most of the respondents lived in capitals (25.0%) or regional centers (23.3%) or other towns (25.2%), while 14.7% in other types of settlements, 4.9% in communities devoted to Krishna Consciousness and 6.7% of the respondents did not disclose their place of living. Occupation wise white-collar workers (22.8%), pensioners (19.6%) and blue-collar workers (12.9%) formed the majority of the respondents, and 10.3% worked for Krishna-conscious communities. Other forms of occupations were a student (3.7%), inactive earner (1.8%), maternity leave (1.3%), housewife (1.2%), unemployed (1.2%), dependant (0.1%), and 24.9% did not specify their occupation.

Nine statements were formed on attitudes towards religions promoting themselves. Respondents were asked to evaluate how much they agreed with the statements listed on a Likert scale from 1 to 5, where 1 stood for never, while 5 repeatedly.

SPSS 21.0 statistical software was applied to analyze the data. Homogeneous factors were created, using Varimax rotation with Kaiser Normalization. The KMO value was 0.873, confirming the sample was suitable for factor analysis. Bartlett's test confirmed the validity of the test with a significance level of p=0,000, showing that there may be significant relationships among the variables. The factors' reliability was tested with the Cronbach's Alpha test, two factors achieved scores over 0.8, representing good reliability. The Cronbach's Alpha value of the third factor fell slightly below 0.7 (0.660), which makes this factor questionable. Still, during the analysis, the four-factor format was chosen, since, when compared to other factor numbers, four factors resulted in the highest variance explained and the most logically interpretable results. The fourth factor contained only one variable (Malhotra & Simon, 2009; Sajtos & Mitev, 2007).

Welch ANOVA and Games-Howell post-hoc tests were applied to analyze the factors since these methods are robust to heterogeneity and variable group sizes. All the tests were carried out both including and excluding participants devoted to Krishna Consciousness, to avoid any distortions of the results originating from biased responses (Malhotra & Simon, 2009; Sajtos & Mitev, 2007).

## 4. RESEARCH FINDINGS

After trying different numbers of factors, four elements were identified, explaining 70.023% of the total variance, as seen in Table 1. When interpreting the four factors describing the attitude scale, it was easily visible, that the factors match the structure of the ABC model, representing

Affective, Behavioral and Cognitive elements – except for one statement, 'A religion loses credibility, if it is openly promoted.'. This statement, though by meaning also affective, did not move together with the elements of the Affective factor – nor with the elements of any other factor. Still, since this is an important element of the attitude towards religious marketing, the statement was not eliminated but kept as an independent factor. This resulted in breaking up the Affective component into two elements: Economic Activities and Promotion.

**Table 1.** Factors explaining the attitude of the respondents concerning the promotion of Krishna Consciousness

| Statement | Factor |
|---|---|
| It is a good thing that Krishna-conscious villages welcome visitors and tourists. | Cognitive M=3.82 Std.=1.08 Var. exp.=42.46% |
| Religious communities should keep up with the modern age and be present on online platforms. | |
| I am interested in Eastern cultures. | |
| During my trips, I like to visit sacred destinations of religious communities. | |
| I am open to people promoting or explaining their religion on the streets. | |
| I am willing to pay a higher price for products and services produced by religious communities, than for conventional products. | Behavioral M=3.22 Std.=1.28 Var. exp.=15.50% |
| I like to use services provided by religious communities (accommodation, meals, free-time activities). | |
| I like to buy products created by religious communities. | |
| Religious communities should be independent of economic activities. | Affective – Economic Activities M=2.54 Std.=1.25 Var. exp.=7.80% |
| Religious communities should not engage in economic activities. | |
| A religion loses its credibility if it is openly promoted. | Affective - Promotion M=1.72 Std.=1.09 Var. exp.=7.27% |

Extraction Method: Principal Component Analysis.; Rotation Method: Varimax with Kaiser Normalization; Rotation converged in 6 iterations; KMO=0.873; Bartlett (Approx. Chi Sq.) =1464.060; Sig= 0.000; Total variance explained: 73.023%; Cronbach's Alpha: F1=0.850; F2=0.839; F3=0.660

**Source:** Own calculations

The Cognitive factor accounted for 42.46% of the variance explained, five statements belonged to this category, which represents a rational and open mindset towards religious marketing, including elements such as accepting that religions should keep up with the changes of time too and appreciating the efforts they take to educate the public about their beliefs. This was also the factor of the highest mean, 3.82, and the lowest standard deviation (Std.=1.08), which shows that most of the respondents are generally open and rational about religious marketing. This factor also contained the statement with the highest mean, 4.21 (Std.=1.189), Krishna-conscious villages welcoming tourists, which shows that the respondents are the most open to this form of religious marketing: educating people about religion via tourism.

The Behavioral factor explained 15.50% of the variance and contained activities, such as buying products and using services of religious communities and willing to pay a higher price for these. The mean of this factor is only slightly lower than the first one, 3.22 (Std.=1.28), showing that respondents are not only open to the activities of the religious communities but are also willing to support them financially by buying products or services. The statement with the highest mean in this factor was related to services provided by religious organizations (M=3.47; Std.=1.381).

The third, Affective factor related to Economic Activities explained 7.80% of the variance and achieved a mean of 2.54 (Std.=1.25). This factor contains statements about religions having to be independent from economic activities. A relatively small difference between the mean of the first and the third factor may slightly be contradictory, but a possible explanation could be that the Cognitive factor is not only made up of marketing-related elements and that many people might not regard tourism and promotion as an economic activity. Somewhat contradictory, the statement saying religious communities should be independent of economic activities earned a mean of 2.84 (Std.=1.487), while when it came to religious communities should not engage in economic activities, the mean was only 2.21 (Std.=1.347). As for these findings, people are more tolerant towards religious communities doing certain economic activities than being dependent on economic processes in general.

The fourth factor, the Promotion segment of the Affective element explained 7.27% of the variance, and, as mentioned above, contained only one statement: religions losing credibility, when being openly promoted. This was the factor, and sole statement of the lowest mean, 1.72 (Std.=1.09), which means, that the majority of the respondents do not agree with it. This explains, why this statement did not move together with any of the factors, since this was the statement most respondents disagreed with.

After identifying the factors, Welch ANOVA and Games-Howell post-hoc tests were applied to identify the differences in the answers of the different demographic segments.

In terms of gender, no significant differences were found in the attitudes of the respondents, however, age was an important component determining the responses in the Behavioral factor (p=0.024). Here the responses of participants younger than 18, and between the ages of 36 and 45 differed positively from the factor mean, showing that the opinions of these respondents are more positive than those of the whole sample.

Education level has also resulted in significant differences in one factor: the Promotion component of the Affective Factor (p=0.015), where, interestingly, those with higher education degrees, and respondents having only elementary school education differed positively from the factor mean. This shows that those with the lowest and highest and lowest levels of education have the most negative attitudes towards promoting a religion. There was also a significant difference between the responses of the participants with university degrees and vocational school education (p=0.017); the latter group had significantly more negative responses to this question, showing that they are the most open group towards religious promotion.

Occupation has brought significant differences in two factors, the Behavioral (p=0.009) factor and the Promotion component of the Affective Factor (p=0.000). However, in the Behavioral factor the only group, who differed positively from the factor mean were those, who work for Krishna-conscious communities, which is not surprising since they are the most likely to buy the goods and services of the community. After filtering those, who work for Krishna-conscious organizations, there was no significant difference in this factor anymore (p=0.113). In the Promotion component of the Affective Factor pensioners, students and women on maternity leave differed positively from the factor mean, also after filtering respondents working for organizations of the religion (p=0.012). After filtering, another significant difference has appeared, between pensioners and blue-collar workers (p=0.026) – in line with vocational education, blue-collar workers proved to be the most open towards promoting religions.

Interestingly, the place of living of the respondents has brought significant differences in the case of Cognitive (p=0.007), Behavioral (p=0.037) the Promotion component of the Affective Factor (p=0.000). In the Cognitive factor, people living in capitals, other towns, or communities devoted to Krishna Consciousness differed positively from the factor mean. After filtering the last group, the result has remained significant (p=0.006), showing that people living in capitals and other cities are the most open. A significant difference was detected between inhabitants of capitals and regional centers (p=0.036), who had the most reserved attitude in this factor. In the Behavioral component the significant relationship remained only until the inhabitants of Krishna-conscious communities were included, after filtering this group, no significance was detected (p=0.289). The inhabitants of capitals and other settlements differed positively from the factor mean, being more active in supporting religious communities via their buying behavior, but after filtering, no significant differences between any groups were found. In terms of the Promotion component of the Affective Factor (p=0.000), naturally, the responses of respondents living in Krishna-conscious communities differed significantly from all other respondents (capital: p=0.001, regional centers: p=0.001, other towns: p=0.007, other settlements: p=0.019). Their responses differed negatively from the factor mean, mostly disagreeing with religions losing credibility when openly promoted, while other respondents differed more positively from the mean of the factor. The relationship between the place of living and the fourth factor remained significant also after filtering these respondents (p=0.003). After excluding the inhabitants of Krishna-conscious communities, again, a significant difference was shown between the inhabitants of capitals and regional centers (p=0.026), interestingly, the latter had more positive attitudes. Significant differences were also shown between the respondents not specifying their place of living, and those living in all the other settlements (capital: p=0.032, regional centers: p=0.032, other towns: p=0.016, other settlements: p=0.035). These respondents have also differed positively from the inhabitants of the other settlements and the factor means.

This leaves the Affective factor – Economic Activities unaffected by any of the demographic characteristics. In the case of the religion of the respondents, Welch ANOVA tests could not be performed, because each factor had at least one group had the sum of case weights less than or equal to one. No significant differences were found related to the income level of the respondents.

In the Cognitive factor, those living in capitals had more positive attitudes, than the other groups and the factor mean, showing that people are not necessarily consistent in cognitive, behavioral and affective elements of their attitudes.

## 5.  FUTURE RESEARCH DIRECTIONS

There is already ongoing research extending the scope of the study to different religions and non-religious people as well, to discover the attitudes of the wider public concerning religious marketing. There are also studies on religious marketing activities of different religious groups, and the effect it takes on people with different levels of involvement in the religious community. It would be interesting to also study the intersection of these two areas and find out more about the attitude of people with different levels of involvement in religions towards religious marketing.

## 6.  CONCLUSION

After analyzing the attitudes of the respondents concerning religious marketing, it can be concluded that the attitudes may be explained by the ABC model (Ellis, 1994) since these attitudes

also contain Cognitive, Behavioral and Affective elements, but in the Affective component, we need to distinguish between Promotion and Economic Activities in general.

While the attitudes towards Economic Activities are unaffected by the demographic characteristics examined, in the case of the other three factors, significant differences were discovered between certain groups. Certainly, those living and working in communities devoted to Krishna Consciousness had a significantly more positive attitude towards religious marketing in general. However, the respondents, who live in capitals and other towns turned out to have significantly more positive attitudes than other groups, and significantly more positive than people living in regional centers.

In the Behavioral component, those younger than 18 and between 36 and 45 years were more active than any other group. The Promotional Activities factor of the Affective component was influenced by education, where, surprisingly those, who have completed higher education, but also those with only elementary school qualifications tended to have a more negative attitude, than the other groups, and the same was true for pensioners, students and women on maternity, when it came to occupation. On the other hand, blue-collar workers proved to be the most open toward promoting religion. Inhabitants of regional centers and other settlements turned out to be more positive in terms of promotion than those living in capitals.

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# Comparative Analysis of Food Influencers' Performance During a Highlighted Period

Míra Mohr[1]  🆔

**Abstract:** *Social media plays a crucial role in shaping consumers' dietary decisions and habits, influencing their everyday lives. This research focuses on analyzing data from the Instagram profiles of prominent figures in the Hungarian gastronomy blogging scene, particularly during the Christmas period. The study seeks to explore the methods by which these chosen creators share content and to define the virtual content consumption habits prevalent during the 2023 Christmas season. The results indicate that content creators utilize a range of strategies on the platform, resulting in differing degrees of success. Analyzing the content shared on Instagram provides valuable insights into the creators' individual styles, virtual identities, and preferred methods of sharing and engaging.*

## 1. INTRODUCTION

Christmas has always been a defining and strategically important period in the economic context. The festive shopping frenzy, gift-giving, and Christmas preparations are crucial times for numerous industries. During the holiday season, consumer activity significantly increases, providing outstanding opportunities for commerce to boost annual revenue. The rise of materialism and globalization has not only transformed entire economic processes but has also deeply influenced consumer habits, thereby altering the nature of the holiday itself (Hegedüs & Mitev, 2021). In recent decades, Christmas has evolved into a postmodern spectacle, with Christmas shopping increasingly reflecting the search for the "fragmented self" rather than being solely about home and family celebrations (Belk & Bryce, 1993). Seasonal variations exist in the purchase of food and beverages, with a potential decrease in motivation for a healthy lifestyle during Christmas (Kamiński et al., 2021), impacting the nature and extent of consumption. Researchers found a positive willingness to pay (WTP) for their studied food item (turkey) across all kinds of sales types during the holidays (Bir et al., 2020), reflecting the impact of the Christmas shopping frenzy.

The food industry and social media are becoming increasingly intertwined. Social media platforms have provided food marketers with tools to reach large audiences in a more personalized manner compared to traditional advertising methods (Qutteina et al., 2019). Users primarily receive commercial messages about food and physical appearance-related products from Influencers on these platforms, which consumers are fundamentally aware of (Feijoo et al., 2022). The examination of the social media food market's performance using both quantitative (Mohr, 2023) and qualitative (Törőcsik & Mohr, 2023) methods revealed the extraordinary seasonality of the market, with lows in the summer and peaks in the winter. A more in-depth and comprehensive analysis of the successful Christmas period could prove to be an excellent direction for

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further exploration in this field. Analyzing this highlighted period could contribute to a deeper understanding of the market's supply structures. This study aims to uncover the content-sharing practices of content creators and map out marketing strategies during the Christmas season of 2023.

The following study focuses on the following research questions:

**RQ₁:** What types of content (photographs, carousels, reels) dominate the posts of Food Influencers?

**RQ₂:** To what extent is the Meta Verified subscription utilized among Influencers on Instagram?

**RQ₃:** What specific content marketing strategies are implemented by Food Influencers within the Instagram platform?

## 2. THEORETICAL FOUNDATION

Companies and brands are building relationships with consumers more effectively in the online space. In today's media landscape, one of the most valuable players is the content creator, the Influencer. Influencers are seen as one of the most significant communication factors for persuasion (Giuffredi-Kähr et al., 2022). For marketers in the food industry, sharing food images and videos, publishing recipes, and following food trends are of paramount importance to meet consumer demands. As users spend more time on social media platforms, companies expand their activities across multiple platforms, each with its unique language and communication style. Users are more likely to share posts whose visual content aligns with the primary intent of the platforms (Ahmadi et al., 2023). Facebook users prefer affective textual and visual content, while Twitter users are more inclined towards a combination of informative visual and affective textual content (Ahmadi et al., 2023). Instagram transformed due to the rising popularity of TikTok, experiencing rebranding, identity crisis, and rebranding again. While previously emphasizing the visual aspect provided by photos, the emergence of short videos has reshaped the platform's dynamics.

Influencer marketing has become increasingly prevalent on social media platforms, leading to a growing demand for understanding consumer reactions to sponsored content. Researchers have observed that both celebrities and Influencers prefer product placement as an advertising type, where product usage is naturally incorporated (Zeren & Kapukaya, 2021). In an experiment, researchers concluded that a combination of different advertising variations effectively motivates people to engage with the message, thus enhancing Influencer credibility, brand attitude, and ultimately, purchase intention (Xie & Feng, 2023). These findings underscore the importance of designing effective Influencer marketing strategies and optimizing them to maximize consumer responses.

Influencers can inspire users to achieve their goals, embrace their passions, or make positive changes in their lives. Following Influencers can create a sense of community and connection among users with similar interests or lifestyles (Zhneg et al., 2023). Users can interact with each other in the comments section of Influencer posts, thus forming relationships and strengthening the sense of belonging within the Influencer's online community. The diverse creative content of Influencers enriches users' lives with ideas and inspiration. As a result, users can acquire new skills, gain knowledge on certain topics, or discover useful resources through the content shared by Influencers. Research findings indicate that Generation Z considers Influencers as highly educated friends whom they can seek advice and opinions from, while Generation Y views them as a profession that should be conducted ethically and transparently (Singer et al., 2023).

Analyzing content on Instagram reveals that Influencers, to a lesser extent, incorporate global trends (such as vegetable juices, and dishes made from nuts and fruits), but typically prefer to promote their own culture's traditional foods. Researchers examined content from food Influencers on Instagram in five European countries and found that Influencers primarily advocate for the necessity of physical changes through exercise and nutrition. Content creators predominantly prioritize weight loss, muscle gain, and sports workouts with special diets. The significant role of sports extends beyond photos depicting physical transformations to the promotion of food and sports brands (Von-Polheim et al., 2023). The exaggeration of a healthy lifestyle is also a prevalent phenomenon, primarily evident on Instagram. Researchers have confirmed the socio-cultural model of orthorexic eating tendencies based on social media, suggesting changes in body image. Other authors evaluate interactions with health and fitness accounts as explicit risk factors (Scheiber et al., 2023). While some researchers examining Influencer content found no evidence that sponsorship of unhealthy foods affects consumer preferences, the results indicate that dietary products and foods are widely promoted (Von-Polheim et al., 2023).

## 3.  METHODS

During the primary research benchmark analysis was conducted, which is an excellent method for analyzing brand performance and comparing it with competitors. This study focuses on the Instagram profiles of influential content creators in the Hungarian Food Influencer scene, as identified in our previous research (Törőcsik & Mohr, 2023). Data collection took place between November 1, 2023, and January 14, 2024, using the Sotrender application, a platform designed for measuring social media performance.

### 3.1.  Results of the Distribution of the Contents

The first figure (Figure 1) displays the distribution of content types posted by Influencers. During the specified period, content creators shared 36 photos, 108 carousels, and 56 reels videos. The majority of the content was produced by "D" Influencer (69 pieces). The distribution of posts is illustrated in the second figure (Figure 2.), with the breakdown as follows: 53% in December, 38% in November, and 9% in January. In January, proportionally less content was created, accounting for only 17.9% when adjusted for time.
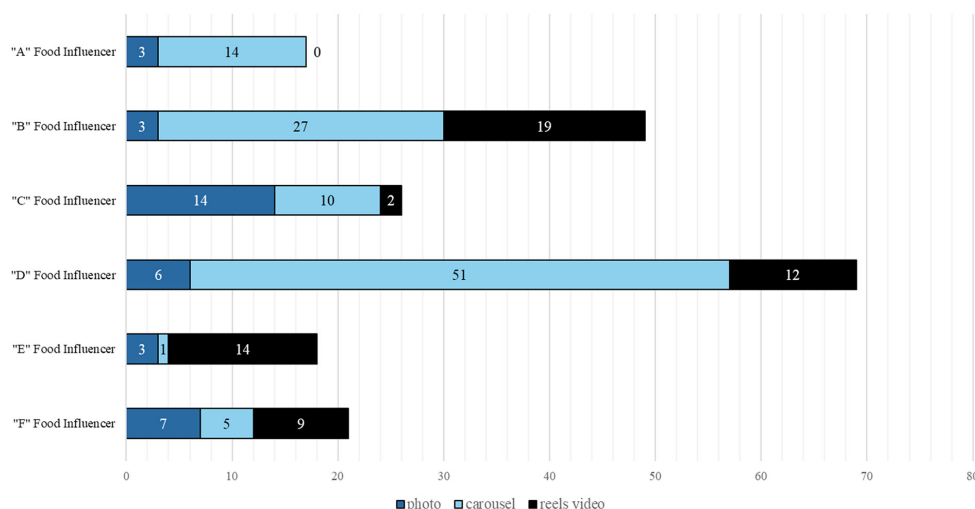


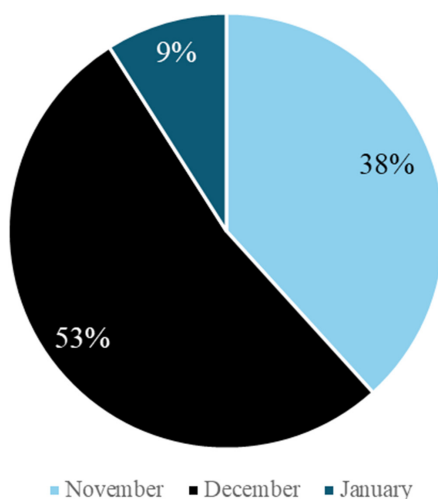**Figure 1.** Distribution of content types among Food Influencers
**Source:** Own research

**Figure 2.** Monthly distribution of content
**Source:** Own research

## 3.2. Results of Influencers

Figure 3 is a comparative chart showing the growth of food Influencers during the analyzed period. At the beginning of the study period, "A" Influencer's page had 132,675 followers, which increased to 137,124 by the end of the period. A photo post shared on December 1st featuring a selection of Linzer cookies significantly boosted the brand's performance, putting the brand on a new growth trajectory.

"B" Influencer's growth appears much more balanced. At the beginning of the study period, "B" Influencer's page had 107,041 followers, which increased to 112,408 by the end of the period. The overall average growth was 4,485 followers for "A" Influencer and 5,377 followers for "B" Influencer, while the actual growth by the end of the study period was 4,449 new followers for "A" Influencer's page and 5,367 new followers for "B" Influencer's page.

"C" Influencer's page had 89,652 followers at the beginning of the study period, which increased to 91,945 followers by the end of the period. "D" Influencer's page had 70,591 followers at the beginning of the study period, which increased to 77,742 followers by the end of the period. The overall average growth was 2,283 followers for "C" Influencer and 6,924 followers for "D" Influencer, while the actual growth by the end of the study period was 2,293 new followers for "C" Influencer's page and 7,151 new followers for "D" Influencer's page. Regarding content sharing, "C" Influencer posted 26 pieces of content, while "D" Influencer posted 69 pieces of content.

"E" Influencer's page had 61,807 followers at the beginning of the study period, which increased to 61,809 followers by the end of the period. "F" Influencer's page had 50,047 followers at the beginning of the study period, which increased to 50,239 followers by the end of the period. The overall average growth was 12 followers for "E" Influencer and 188 followers for "F" Influencer, while the actual growth by the end of the study period was 2 new followers for "E" Influencer's page and 192 new followers for "F" Influencer's page. Both pages operate entirely organically, without advertising, subscription to Meta Verified services, sporadic product placements, or hosting giveaways.
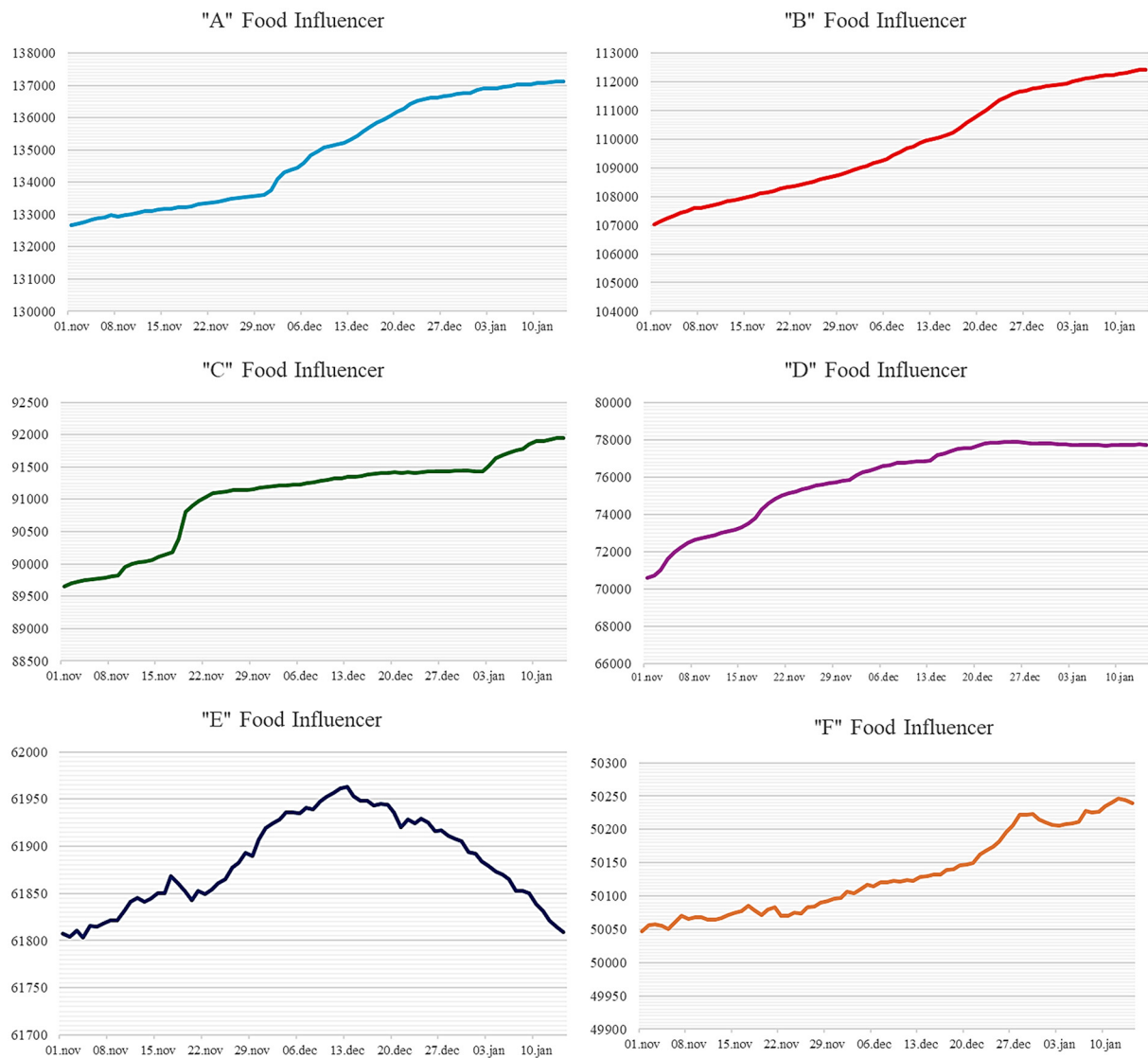
**Figure 3.** Comparative chart illustrating the growth of the Food Influencers pages

**Source:** Own research

In Figure 4, the daily distribution of follows and unfollows for the pages can be observed. "A" Influencers page experienced its lowest point of unfollows with 27 on November 8th, while the peak of follows was 345 new followers on December 2. For "B" page, the fluctuation in new follows is visibly higher on the x-axis. Comparing ratios, "B" page exhibits the smallest standard deviation among new followers ("B" Influencer's new followers' standard deviation: 41.762; "A" Influencer's new followers standard deviation: 61.702).

It can be noted that neither page was advertised during the study period; they solely utilized product placements. "B" Influencer shows a higher reach, possibly due to their popular YouTube channel (with 150 thousand subscribers), through which they regularly share content, thereby engaging their audience across platforms. "A" Influencer typically shares fewer but higher-quality content. During the study period, they only posted 17 pieces of content, and notably, this brand was the only one that did not share any reels videos. "B" Influencer shared 49 pieces of content during the study period, making it the brand with the most video content, which aligns with their identity as YouTubers.
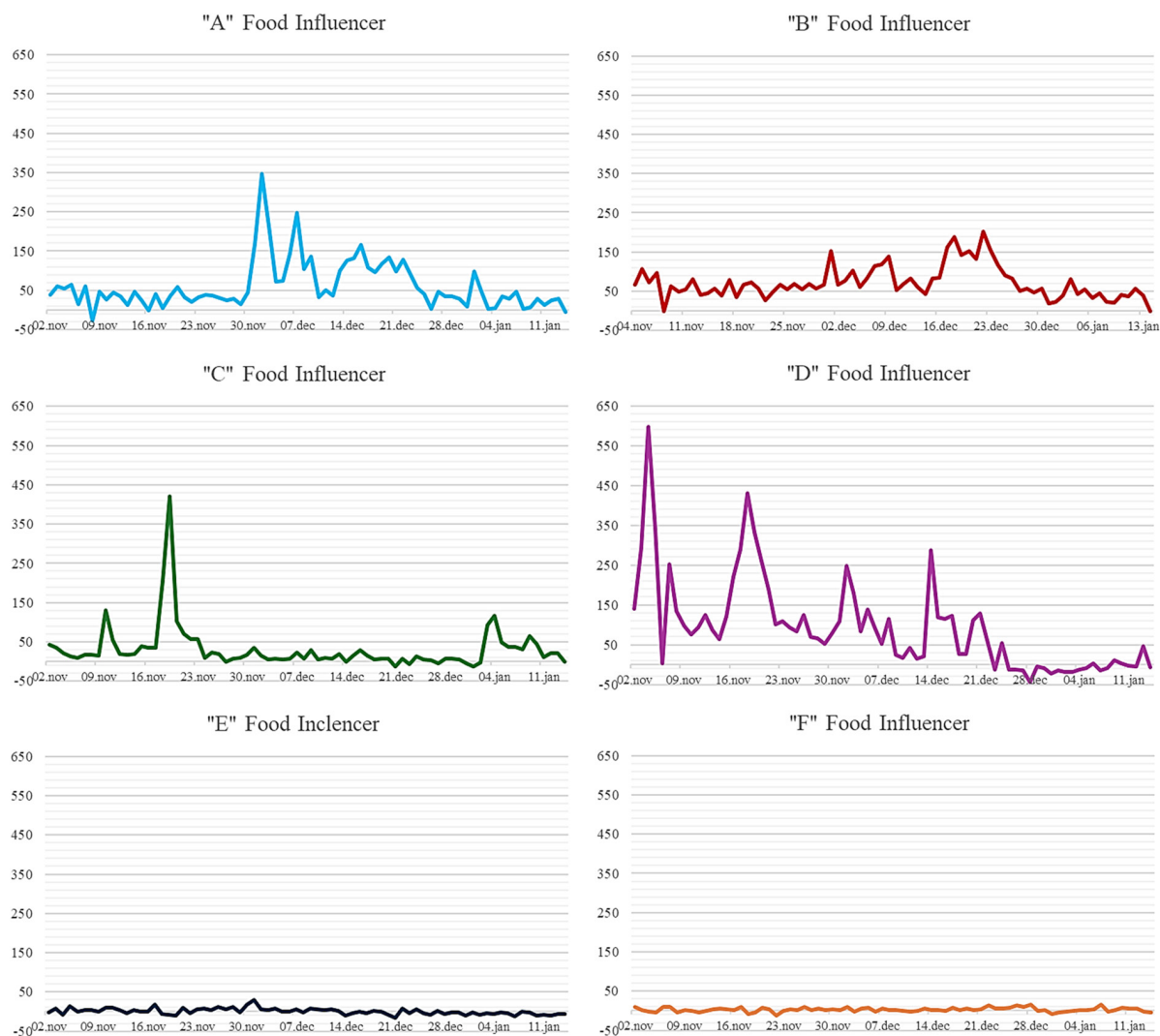
**Figure 4.** Comparative chart illustrating the daily following and unfollowing of the Food Influencers pages

**Source:** Own research

"C" Influencers page has the lowest point of unfollows was 3 on January 1st, while the peak of follows was 421 new followers on November 19th. They initiated a high-value giveaway on November 18th. The brand regularly advertises its content, collaborates with agencies, and has had a Meta Verified subscription since July 2023. It can be observed that the brand has a low standard deviation in the number of new followers (57.59 followers).

"D" Influencer has a much more fluctuating pace of new followers, with the highest standard deviation in this regard among the analyzed pages (117.448 followers). The brand regularly hosts giveaways, resulting in remarkable peaks on the timeline (598 new followers on November 4th, 430 new followers on November 18th, and 287 new followers on December 14th), which leads to significant standard deviation. However, after the giveaway fades, starting from December 25th, there is a continuous trend of unfollows, with a peak of 43 on December 28th when the Influencer shared a picture of themselves, unusually. The brand quickly reacted to the negative results by subscribing to the Meta Verified service, which currently ranges between 6,290 and 10,490 HUF/month, depending on the package.

The graphs for "E" Influencer and "F" Influencer show low standard deviation in new followers, with E = 48.333 and F = 62.352 being the square root of the difference in the two Influencers' standard deviations. Both Influencers shared a similar number of content, with "E" Influencer posting 18 and "F" Influencer posting 21. "E" Influencer experienced a low point of 16 unfollows on December 16th, while the peak of follows was 29 new followers on December 1st. Although both content creators have high-quality visual content and outstanding pastry products, without investment in the platform, they seem to achieve stagnation at best, with only minor growth.

## 4. FUTURE RESEARCH DIRECTIONS

A successful next step could be to apply multiple regression models to determine which strategy proves to be the most effective. The suitability of the method has already been examined. The additional results of the Kolmogorov-Smirnov test can be considered acceptable regarding the normal distribution of the data at the chosen significance level (0.05). The measurement of linear relationships between variables has been performed, revealing, among other findings, that the frequency of posts shows a positive linear relationship with the number of new followers in numerous unique cases. (the frequency of posting and the number of new followers for "A" and "B" Bloggers Pearson Correlation Coefficient, 0.407** and 0.467**).

## 5. CONCLUSION

In conclusion, the benchmark analysis of the content performance of Food Influencers on Instagram has revealed significant trends and insights. Firstly, the examination of $RQ_1$ indicates that while carousels currently dominate, there is a noticeable shift towards short video content. Moreover, the diminishing impact of high-quality content on reach underscores the challenges Influencers face in achieving growth in this competitive landscape.

The analysis of $RQ_2$, findings highlights the increasing pressure faced by Influencers to subscribe to Meta Verified services. Notably, "C" and "D" Food Influencers have embraced this subscription, while the organic strategies employed by "E" and "F" Influencers have yielded limited success, resulting in stagnation and minimal growth. This suggests a complex interplay between subscription utilization and organic growth strategies among Influencers.

Lastly, the examination of $RQ_3$ underscores the diverse content marketing strategies adopted by Food Influencers on Instagram.

Based on the analyses, Food Influencers choose the following strategies:
- "A" Food Influencer: Few photo-based content,
- "B" Food Influencer: Regular content with a significant video presence,
- "C" Food Influencer: Advertising strategy,
- "D" Food Influencer: Use of giveaways,
- "E" and "F" Food Influencers: Regular high-quality visual content.

From "A" focusing on infrequent photo-based content to "B" maintaining a consistent presence with a strong video emphasis, each Influencer employs a unique approach to engage their audience. Notably, the prioritization of high-quality visual content by "E" and "F" Influencers.

In essence, this study sheds light on the dynamic nature of content creation and marketing strategies within the Food Influencer community on Instagram, emphasizing the need for adaptability and innovation in navigating the evolving landscape of social media influence.

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# Citizen Perception of Transparency in the Provision of Online Public Services

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**Abstract:** *With the introduction and the implementation of the e-government, citizens have gained a tool that permits them to be informed, to have timely access to the offered public services and somehow to have a participatory role in governmental decision-making.*

*However, there is a relative lack of studies related to citizen perceptions of e-government especially related to the level of transparency they perceive when they use online services.*

*For this reason, this paper is focused on a systematic literature review in order to give insights regarding the relationship between e-government-transparency-citizen, and also to explore which are the factors that can increase the interactivity between e-government and citizens.*

*The main finding of this systematic literature review is there are no mechanisms that can measure the appropriate level of transparency, which mostly satisfies the citizens, but we have tools such as legal frameworks, standards, and independent authorities that should enforce it.*

## 1. INTRODUCTION

It is known that **society** is directly related to the service provided by public administration and as a result, it directs its entire activity towards fulfillment of the needs and interests of the public, exercising its functions, based on the principles of ethical and respectful law. With the introduction and the implementation of the **e-government**, the citizens have gained tools that permit them to "control" government activity and to have a participatory role in governmental decision-making. On the other hand, e-government should be understood as a tool in order to improve transparency, increase trust, and have major support for public projects. Many governments across the globe have been making efforts to become more transparent and open to consumers, which improved with the implementation of information technologies and digitalization of traditional governmental services. In order to materialize the goals, E-governance was called to deal with administrative corruption, no access to information from citizens, benefits at the expense of governments, and poor supervision.

*How important is transparency when it comes to the relationship between government and citizens?* Transparency has long been considered an important cornerstone of good governance. It can improve decision-making, impede corruption (Bertot et al., 2010), enhance accountability (Pina et al., 2007), and foster a more informed and understanding citizenry (Cook et al., 2010).

At the same time transparency, it is about being informed and helps the citizen to know what is happening and why. This improved understanding of government is thought to engender greater trust in government and more responsive public organizations (Grimmelikhuijsen et al., 2013; Porumbescu, 2015).

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OGD initiatives are often focused on creating transparency (Bertot et al., 2010) and at the same time, transparency remains a key factor for creating an open government. Transparency and accountability of the institution can be increased, leaving open government data and records. Open Government Data is a new approach that can be used by public sector institutions to improve the quality of their decision-making processes tire and the quality of public services.

Open Government Data refers to "governance information in a proactive order, which is discovered and put online all over the world, for unrestricted use and reuse ". OGD helps in the promotion of effective participation, reduces resource loss and creates facilities and opportunities for innovation and economic growth, combined with tools such as big data analysis.

Since the implementation of ICT in government enables citizens to foster and improve collaboration with the government, their perceptions of the effects of the use of technology remain very important.

This paper through a systematic literature review aims to identify those articles that study the citizen perception of transparency to answer this research questions:

**Q1.** *What are the measures unit that evaluate the right level of transparency perceived by the citizens in order to create satisfaction?*

**Q2.** *What are the factors that enable or impede the creation of a culture of transparency?*

This work was inspired by the Albanian context, where the Cross-cutting Strategy "Digital Agenda of Albania 2015- 2020" aimed at the most coordinated and efficient management of investments in the Information and Communication Technologies sector, on purpose providing quality services to the citizens and improving living. These policies are harmonized with the Sectoral Strategies as well as aligned with the European Agenda 2020 and the SEE2020 Regional Strategy.

## 2. METHODOLOGY

Given the extensive use of Systematic Literature Reviews (SLR) in management research, this method was chosen to effectively address the research questions posed in the study (Denyer & Tranfield, 2008; Abatecola et al., 2013; Abatecola et al., 2013).SLR in the management studies results helpful to respond to the question "what" and "how" rather than "why". In order to respect the key principles of the SLR which are: Transparency, Inclusivity, Explanation, and Heuristic (Denyer & Tranfield, 2008) below is outlined the protocol of research:

**Protocol of research**
- SCOPUS as the research database.
- Considered only peer-reviewed science journal articles published in English. Conversely, did not take into account books, chapters in books, conference proceedings, working papers and other unpublished works.
- To ensure the substantive relevance of the articles' focus on requiring that all the selected articles contain, at least, one of the following 3 keywords in their abstract or title: "e government*", or "transparency" or "corruption.
- To ensure the substantive relevance of the articles' focus on e-government issues by requiring that all those articles selected in the previous phase also contain, at least, one of the following 8 additional keywords in their abstract or title: "digital government", or "collaborative transparency", or "culture of transparency' 'or "trust", or "citizen* perception",

or 'citizen* engagement'' or 'openness or open government''( The asterisk at the end of a search word allowed for different suffixes).

- All the articles selected in the previous phase were scanned by reading their abstracts to ensure substantive content.
- The articles selected in the previous phase were red in order to ensure relevance and also to ensure the linkage between the chosen work and the aim of the research.
- In the last phase, a ''snowballing'' technique was adopted to support the results from the previous phases.

In sum, the dataset is composed of 41 papers, published between 2010 -2020. For determining the articles' substantial relevance, there was adopted specific inclusion/exclusion criteria, thus, following the ''fit for purpose'' approach by Denyer and Tranfield (2008). The articles examine e-government not only as a technological tool but also as a means of reshaping the relationship between governments and citizens. They emphasize the need for a conceptual framework to guide strategic e-government initiatives and address methodological aspects essential for assessing its impact.

**Table 1.** Summary of the results

| Phase | Description | Scopus |
|-------|-------------|--------|
| 1 | All those articles containing at least one of the primary keywords in their abstract or title | 847 |
| 2 | All those articles containing at least one of the 8 additional keywords in their abstract or title | 127 |
| 3 | According to the chosen ''fit for purpose'' method, all those articles whose abstracts were substantively relevant | 68 |
| 4 | According to the chosen ''fit for purpose'' method, all those articles whose text was effectively relevant | 32 |
| 5 | Snowballing techniques | 41 |

**Source:** Own research

## 3. RESULTS

Within the dataset, seven articles are theoretical, twenty-five articles are quantitative analyses, four articles are content analysis, one is a scientometric study and four of them are qualitative studies. Mostly the quantitative analyses are based on surveys where the majority of them are online surveys by social media or by email (for old people), and they are heterogeneous regarding the size and the sample. Regarding the survey method, it is interesting to mention, for the aim of the research that 6 articles use questionnaires, 4 of them interviews, and the others do use secondary data for their analysis.

The quantitative studies that use a questionnaire are focused on:

1. the citizen perceptions regarding the link between transparency and trust (Porumbescu, 2015, 2016),
2. the citizen perception regarding corruption in public services (Saxena, 2017),
3. the students' e-participation and how this affects participation in e-government initiatives (Bataineh & Abu-Shanab, 2016),
4. the citizens' perceptions of the impact of information technology use on transparency, efficiency and corruption in local governments (Valle-Cruz et al., 2016),
5. the impact of drivers of e-government on citizen satisfaction (Al-Ma'aitah, 2019),
6. Chief Information Officers (CIOs) of state governments were surveyed to identify the extent of the adoption of the Directive on Open Government (Ganapati & Reddick, 2012).

The sample observation period is described in every paper, while regarding the geographic distribution of papers there is equality between papers that include data from Europe, USA, and Asia and there are several papers that include data from UN nations, excluding those countries for which indicators are not available. Four papers are focused on the local government (Valle-Cruz et al., 2016; Porumbescu, 2016; López-López et al., 2018; Bonsón et al., 2012) and this represents a study limitation for this article.

The qualitative papers use limited interviews in social groups, in-depth interviews, or semi-structured interviews (Al-Shbail & Aman, 2018) where this last one is focused on Jordan customers and enables to capture the perceptions of participants and to understand their personal experiences and opinions regarding the e-government implementation to promote accountability.

The content analysis is mostly web content analysis on transparency initiatives, ICT tools used to enhance transparency (Bertot et al., 2010), or analysis of previous research to claim the relationships that exist between transparency and trust in local governments.

Regarding the cross-national study, there are two of them, where the scientometric study compares the research efforts in the field of e-government in developed and developing countries for ten years (Rodríguez Bolivar et al., 2016) and the other paper is also a cross-national comparison of the best practices of e-government implementation (Shkarlet et al., 2020).

Descriptive statistics together with regression analysis results as the most used statistical techniques for testing the possible association between transparency, use of ICT tools, corruption, e participation, efficiency, accountability, etc., this can come as the result of the fact that most of the articles do use secondary data, retrieved from the website that enables different indicators for the majority of the UN nations.

Table 2 categorizes the overall dataset per academic journal. The results show that the works within the dataset are published in 25 different international journals. Many of these journals are classified as top journals by most of the existing international journal ratings (SCIMAGO). Moreover, it is listed the temporal trends of the articles in Fig. 1, where there is the number of articles published per year from 2010-2020. There is a discontinuity in time regarding the number of articles published by year and some of the reasons may be firstly due to the initiation of Obama's Memorandum of Understanding in 2009, where President Barack Obama signed a Memorandum on Transparency and Open Government affirming his administration's commitment toward "creating an unprecedented level of openness in Government" (Obama, 2009). The memorandum highlighted three essential pillars of open government: transparency, participation, and collaboration. After the memorandum, the Open Government Directive issued in December 2009 instructed executive departments and agencies to take specific actions toward achieving the goal of creating a more open government (Ganapati & Reddick, 2012), resulting in a rise in the number of articles till 2010. The second discontinuity was in 2011 when the Open Government Partnership was signed and it is one of the most important instruments to promote government transparency globally, to increase civic participation in and for public life use new technologies to improve administrative efficiency and fighting corruption. There is a third discontinuity after 2014, where researchers have been more ambitious to advance the efforts of OGP to enhance transparency, by going from technical issues to more civic issues.

**Table 2.** Quantitative analysis

| Statistical techniques | Nr=25 | % |
|---|---|---|
| Descriptive statistics | 7 | 28% |
| Regression analysis | 7 | 28% |
| Multiple regression | 3 | 12% |
| Structural equation modeling SEM | 2 | 8% |
| R index, comparative models | 1 | 4% |
| The probability reduction approach of empirical modeling | 1 | 4% |
| Partial least squares | 1 | 4% |
| MANCOVA | 1 | 4% |
| Statistical test | 1 | 4% |
| SPSS | 1 | 4% |
| **Total** | **25** | **100%** |

**Source:** Own research

**Table 3.** Distribution of Articles by Journal

| Number | Journals | Articles |
|---|---|---|
| 1 | Government Information Quarterly | 7 |
| 2 | Transformation Government | 5 |
| 3 | Information Polity | 3 |
| 4 | Public Management Review | 1 |
| 5 | Information Technology for Development | 1 |
| 6 | International Journal of Public Administration | 2 |
| 7 | Public Integrity | 1 |
| 8 | Journal of Open Innovation | 1 |
| 9 | International Journal of Business and System Research | 1 |
| 10 | International Journal of E-Business Research | 1 |
| 11 | Public Organization Review | 1 |
| 12 | International Journal of Information Management | 2 |
| 13 | Foresight | 1 |
| 14 | International Review of Public Administration | 1 |
| 15 | Journal of Global Information Management | 1 |
| 16 | Sustainability (Switzerland) | 2 |
| 17 | Information Systems Management | 1 |
| 18 | International Journal of Electronic Government Research | 1 |
| 19 | Technological Forecasting and Social Change | 1 |
| 20 | Administrative Management Public | 1 |
| 21 | Australian Journal of Public Administration | 1 |
| 22 | Journal of Global Information Management | 1 |
| 23 | Public Performance and Management Review | 1 |
| 24 | Journal of Open Innovation: Technology, Market, and Complexity | **1** |
| 25 | Public Performance and Management Review | 1 |
| Total | | **41** |

**Source:** Own research
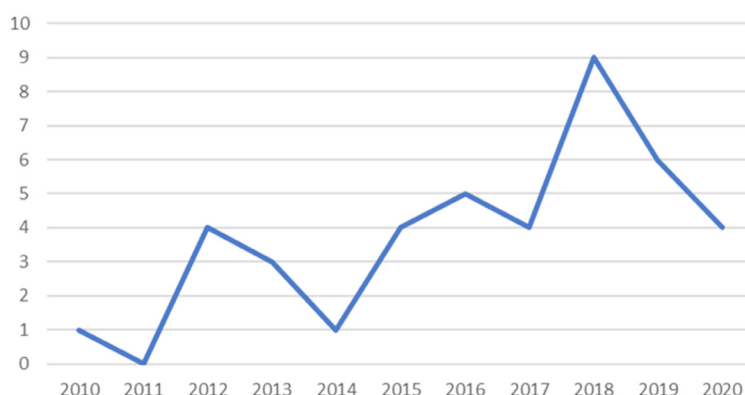


**Figure 1.** Numbers of papers published by year

**Source:** Own research

## 4.  FINDINGS

Since the purpose of the article is to analyze the literature on how transparency can be measured, in this section there will be an analysis of the determinants, the characteristics and the results/effects of the transparency. This analysis can create the premises to construct a multidimensional model for measuring transparency. To measure transparency firstly we should give a definition related to the context although a definition is already given in the introduction. Since e-government uses ICT tools to achieve better government (OECD 2003) and one of the results is the enhancement/strong transparency on the other hand there is no universal definition for transparency, given the context we can talk about **computer-mediated transparency** (Grimmelikhuijsen et al., 2013; Bertot et al., 2010). Transparency is an effect of the e-government initiatives and to evaluate it we should answer the questions?

– *What are the main determinants or factors which influence the success of transparency?*
– *What are the effects or the results of the transparency?*

There is a variety and complexity of factors that can be a barrier, or which can have a positive influence on the success of transparency. The determinants are divided into four big clusters (Janssen et al., 2017) as below:
1. Data characteristics (the aspects determining the quality of open data published):
   - Accuracy,
   - Timely,
   - Accessible (free access/open access),
   - Reuse,
   - Non-property.
2. System Quality (Characteristics of systems that are used for publishing data):
   - Web 2.0 features,
   - Language,
   - Searchability,
   - Usability,
   - Functionality.
3. Organizational characteristics (Variety of organizations that publish the open data):
   - Managerial leadership,
   - Acceptance of ICT tools from public employers,
   - Strategic plans,
   - Government and technological literacy (mostly for developing countries),
   - Political support.
4. Individual characteristics (Variety of users of the open data/citizen in our case):
   - Gender,
   - Level of education,
   - Culture dimension,
   - Technology literacy
   - Intermediaries (web pages, social media, NGO),
   - Acceptance of ICT tools from citizens.

Sometimes is difficult to individualize a determinant, because there is no uniformity in measurement (Janssen et al., 2017), and also there are no clear interpretations of the determinant and the effects positive or negative they have on transparency. It has been easier for the effects that computer-mediated transparency brings and those are listed below:

- Trust,
- Accountability,
- Citizen participation,
- Citizen engagement,
- Reputation,
- Anti-corruption,
- Culture of openness,
- Overcoming asymmetry of information,
- Preserve democracy,
- Support for the reforms.

In general, the papers do represent the positive effects of transparency and the most mentioned effects are headed by anticorruption initiatives (Jameel et al., 2019; Saxena, 2017; Lee et al., 2018; Nam, 2018; Zhao & Xu, 2015), followed by trust and credibility (Porumbescu, 2015, 2016; Mensah, 2018; Pérez-Morote et al., 2020; Jameel et al., 2019), accountability (Bertot et al., 2012; Al-Shbail & Aman, 2018; Halachmi & Greiling, 2013), citizen participation/citizen engagement (Bataineh & Abu-Shanab, 2016; Vakeel & Panigrahi, 2018; Al-Ma'aitah, 2019; Merhi & Koong, 2013), reputation is an effect which is still limited by recent studies prove a positive relationship between transparency e-government and reputation (López-López et al., 2018). Transparency has not always had positive effects, releasing large amounts of data conduct to information overloads and errors (Grimmelikhuijsen & Meijer, 2014). The significance of various determinants hinges on their impact on transparency. Factors that act as barriers or success contributors play a role, but simply releasing information does not inherently create transparency. Numerous factors and actors complicate the overall transparency process.

The results that are expected from the transparency are sources of value for the citizens and other stakeholders. Including citizens in the measurement and evaluation of these factors is an important component of every assessment process and at the same time it is important related to the research question. To collect data about citizen perceptions different techniques can be used such as surveys, focus groups, and interviews.

The papers that have as research objective the evaluation of citizen perception on e-government, corruption, e-participation, etc., in this SRL, are 14, but the papers that do evaluate citizens' perceptions of transparency are 5 papers.

The papers that do use a questionnaire to evaluate the citizen perceptions on different dimensions of the e-government are based on different theoretical frameworks such as:
1. TAM – Technology Acceptance Model,
2. CRM – Customer Relationship Management,
3. SQM - Service Quality Model,
4. EDM - The expectancy-disconfirmation model,
5. Agency theory/ Customer Focus Theory,
6. Path diagram of relationship.

The 5 papers that have had as the objective of their research the assessment of the citizen perception of computer-mediated transparency are case studies on developed and developing countries such as Seoul, Jordan, China and Mexico. 2 of the papers have used the TAM approach (Valle-Cruz et al., 2016; Mensah, 2018), 1 has used the CRM approach (Al-Ma'aitah, 2019) and

2 from the same author have used a path diagram relationship. 3 of these papers have used the point Likert scale which ranged from 1-Strongly Disagree (SD) to 5-Strongly Agree (SA) in order to measure the items in the instrument used. TAM was developed to frame how users accept and use technology based on two main variables: (1) perceived ease of use and (2) perceived usefulness of the technology, which together help to understand the behavioral intention of use. Social CRM is defined as an organizational strategy utilizing the social characteristics of IT opportunities to integrate and involve customers in the decision-making processes of an organization within a transparent and trusted environment (Greenberg, 2010).

## 5. DISCUSSION

In order to answer the research question about the measurement of the level of transparency that creates satisfaction among the citizens, it seems difficult firstly to measure and evaluate the transparency and the effects it creates, because it is a multidimensional concept. As we saw before there are many determinants and each of them does have different impacts on the effects of transparency, and the literature does not help to much about the importance of each factor. The level of transparency depends on the type of data disclosed, depends on who is the user, the time, the position the users have, etc. On the other hand, this paper focuses on the citizen perceptions and their evaluation, where the TAM approach is the most used but it is more related to technological factors. It will be effective to combine the determinants related to individual characteristics with a TAM approach in order to create an effective tool to measure the level of transparency perceived, or at least the sufficient level that can give satisfaction to the users, full transparency is difficult to achieve and non-necessary.

The success of the implementation of ICT tools depends on the acceptance of them by the citizens (Bertot et al., 2010). Different papers relate the use of ICT tools with the cultural dimension with the help of the Hofstede model (Grimmelikhuijsen et al., 2013; Vakeel & Panigrahi, 2018) and this demonstrates that there are limitations regarding the articles taken into consideration regarding the SRL and another time demonstrates that the measure of the level of transparency depends from the context and details of it allow the public the opportunity to interpret the data (Janssen et al., 2017). The context defines what level of transparency is feasible and how transparency can be created (Janssen et al., 2017).

A solution may be the transparency by design. The definition of transparency-by-design is to take into account transparency in every phase of the design process resulting in the automatic opening of relevant data for the public in such a way that it is easy to understand and interpret (Janssen et al., 2017).

## 6. CONCLUSION

The importance of the use of open data government is related mostly to the positive effects it creates, by enhancing transparency, and as a result of it, there is citizen participation and engagement.

An open-data government creates a great opportunity for transparent, accountable and effective institutions of public administration. In support of the Agenda 2030 for the use of stable ICT in government, this has allowed individuals to access data that were previously very difficult to obtain. Governments produce and archive large amounts of data on multiple issues from

education, to military affairs, to the number of hospitals, to air quality, court transcript, vital data, nominal data, traffic jams and weather, etc. Assuring online, standardized, open access, equal governmental information, makes this information available for everyone who does know how to use it, or just notifying for its existence. Today governmental data can be found at regional, national, and local levels. Open date is to keep the public informed and to bring sustainable development. Making data available online allows the public to reuse and remix data for any purpose, leading to new services, innovation and enhanced economic opportunities.

Many countries have created portals dedicated to sharing data, which are known as the "Government Open Data Portal". Many also have Open Government data, catalogs which are lists of all data sets available, usually organized by topic (e.g., environment, expenditures, health, etc.) and/or by the relevant and established Ministries available on the national portal or the Open Data Government portal. The same has been implemented in Albania, there is a government portal www.e-albania.al, which is a government portal, central to every individual who can be informed or get information in it. But in the meantime, every ministry has its own page, not only informative but also to be used, independently, and accessible from the portal government. The individual chooses where he can get his service, but meanwhile, he is kept informed online.

Access to public information is the first essential step in motivating people and empowering civic engagement, in public policy decision-making processes so that "there is no walking back ". Access to public information is essential for democratic governance and social inclusion. However, if governments with open data available, but with a population, that is not unable to access and use them, or unaware of their availability, this effort has little impact in terms of enhanced accountability and opportunities for innovation and economic growth. It is a fact that data for itself has no value. The added value comes from how much and how people re-use data in new ways.

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# Unveiling Public Sentiment:
# The Role of Social Media in Shaping Perception of Conflicts

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**Abstract:** *Social media networks have become a critical tool for sharing information and influencing public opinion on controversial political or social events. Recent studies have revealed that users tend to alter the content before sharing it, hence spreading a point of view contrary to that of the original author. This phenomenon plays a significant role in shaping public opinion on delicate political matters, particularly considering the common bias found in press reports and articles favoring certain ideological or political factions, which contradicts the supposed neutrality of the media. Hence, this study focuses on the ongoing global conflicts, aiming to uncover insights into how social media users are influenced by the political rhetoric of prominent political figures worldwide. Our dataset consists of more than 1,000 comments on social media platforms, including Facebook and Twitter, where the French president discusses his views on the ongoing conflict. This study utilizes natural language processing (NLP) techniques to analyze sentiment dynamics, media influence, temporal patterns, and user behaviors within the comments section of social media platforms. The aim is to observe how the public's perception is formed, including their attitudes towards support dynamics such as donations and other forms of assistance. The authors employ various methodologies to meticulously gather and process information from diverse sources, including data scraping. This approach ensures the creation of a comprehensive and representative dataset for the study. The findings detect an underlying trend and correlation between the political conversation and societal stance, shedding light on the interplay of the two. The research aims to potentially inform the public, humanitarian organizations, and policymakers on the interplay between these variables and highlight the significance of using data-driven methodologies to unravel the geopolitical discourse and the societal implications.*

## 1.  INTRODUCTION

In the contemporary digital landscape, social media networks have emerged as formidable platforms for disseminating content, wielding significant influence in shaping public perception (Hennig-Thurau et al., 2010; Zhang et al., 2011; Quattrociocchi et al., 2014). With users actively engaging through comments, shares, and interactions, these platforms have transcended their initial purpose as mere communication tools, evolving into dynamic arenas where narratives are crafted, and conversations are shaped.

Furthermore, the burgeoning influence of social media on political discourse is undeniable. These platforms serve as conduits for direct interaction between institutions and citizens, facilitating a more participatory and engaged approach to political decision-making processes. The advent of

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social media has ushered in an era where individuals wield unprecedented power to voice their opinions, contribute to discussions, and hold public figures and institutions accountable.

Moreover, social media platforms have emerged as potent instruments of influence in pivotal political events across the globe (Getachew & Beshah, 2019). The seismic shifts witnessed in the 2008 and 2016 U.S. presidential elections underscore the profound impact of social media on shaping electoral outcomes and mobilizing voter sentiment (Enli, 2017; Bovet et al., 2018). Similarly, phenomena like the Arab Spring in the early 2010s and the Umbrella Movement in Hong Kong exemplify the transformative potential of social media in catalyzing grassroots movements and amplifying voices of dissent (Howard et al., 2015; Lee & Chan, 2015).

In the context of the ongoing Palestine-Israel conflict, the role of social media in shaping political discourse has assumed unprecedented significance. The conflict has catalyzed intense emotions and impassioned debates, driving substantial engagement across various social media platforms. What distinguishes discussions surrounding Israel is not just their political nature but also their ability to transcend traditional boundaries, permeating into broader societal spheres. One notable aspect of the discourse on Israel is its propensity to extend beyond conventional political realms, permeating into everyday consumer choices and cultural events. Calls for boycotting Israeli products, companies, and cultural events have gained traction, symbolizing a form of grassroots activism that leverages social media platforms to amplify its message (Tharoor, 2014). Instances such as the boycott campaigns targeting the 2019 Eurovision Song Contest and an Israel–Argentina football match illustrate the intersection between political activism and cultural expression on social media (Riesman, 2019; Staff, 2018; Eglash, 2018).

Furthermore, participants in the debate surrounding Israel often employ diverse content strategies to sway public opinion. Non-political content, from personal anecdotes to cultural expressions, is strategically utilized to either garner support for or challenge perceptions of Israel. This nuanced approach underscores the adaptability of social media as a tool for shaping narratives and influencing public sentiment, transcending conventional political discourse.

Thus, the discourse on Israel exemplifies the multifaceted nature of social media's influence on political conversations. It underscores the convergence of politics, culture, and activism on digital platforms, where individuals and groups leverage the power of connectivity to advocate for their beliefs, challenge prevailing narratives, and mobilize support for their causes. As such, it becomes imperative to explore the multifaceted role of social media in political discourse, delving into its capacity to galvanize collective action, shape public opinion, and redefine traditional power dynamics. By examining the intersection of social media dynamics and political engagement, we can glean valuable insights into the evolving landscape of participatory democracy and its implications for governance, civic engagement, and social change.

Hence, this paper aims to investigate the discernible influence of social media on shaping perceptions of political conversations. By analyzing the interplay between social media usage and the perception of political discourse, this research seeks to unravel the complexities inherent in this relationship. The authors use Facebook and Twitter data from posts made by President Macron related to the Palestine-Israeli war to better understand the influence of politics in swaying public opinion. The findings of this study hold the potential to offer valuable insights that can inform not only the general public but also humanitarian organizations and policymakers. Understanding the interplay between social media dynamics and the perception of political

conversations can contribute to a more nuanced comprehension of contemporary societal dynamics, facilitating informed decision-making and fostering constructive dialogue.

The structure of this paper is as follows. The next section will comprise a comprehensive literature review, investigating the intricate relationship between social media and political events. Additionally, it will include a text analysis of social media posts to provide insights into the dynamics of online discourse. The third section will detail this study's data collection methods and methodology. Subsequently, the fourth section will present and discuss the results obtained from the analysis. This section will critically examine the findings, highlighting significant trends, patterns, and correlations observed in the data. The last section concludes.

## 2. LITERATURE REVIEW

Social media users are interconnected to others in a fraction of a second and have the opportunity to reach many channels at a time, contributing to the increase in the use of these mediums. We are now using social media networks like Facebook and Twitter to get informed on political and social issues. As the Young Entrepreneur Council (YEC) has written in an article in Forbes (Yec, 2023), users are getting an abundant amount of information from many different sources, otherwise called 'content overload', that gets repurposed and employed by other channels, hence the information may not be trustworthy or even biased. Users interact with posts from various social media content creators or influencers by liking, commenting, reposting/sharing, hence getting informed with many perspectives and opinions of others, leading to their perception of conflicts. This interaction with the content is influenced by factors such as the content itself, exposure, and the effects it has as Emily Kubin and Christian von Sikorski have stated in their research on the role of the media in political polarization (Kubin & Von Sikorski, 2021). News media may factor into the framing of the conflict in a certain way, by posting divisive issues and presenting biased perspectives. The extent to which users are exposed to the content posted by these channels and the interplay of the filtering of the platforms and targeting of politicians performed on individual accounts due to their personal biases and beliefs are factors in the deepening of polarization of public opinion. This literature review is focused on the sentient analysis that has been employed in various papers and studies on this specific matter.

Social media shapes public opinion and influences economic decision-making, including consumer preferences, brand perception, and purchasing behavior. Users generate reviews and recommendations for the products promoted, therefore indicating changes in market dynamics and personal preferences. Spread of misinformation and the 'filter bubble' phenomenon, in which users are exposed to what the algorithm presents to them, by tailoring and filtering their behaviors and interactions (Ausat, 2023). The researcher, in his paper on economic decision-making influenced by social media platforms, has employed the use of qualitative methods, thus gaining a more nuanced understanding of perceptions and triangulation, to ensure the reliability and validity of findings and minimize biases that may be created. The participation of secondary source participants as methodologies of study in the analysis process enhances the robustness of the insights made.

In the context of other conflicts, like police brutality and local crime, the formation of public sentiment using channels like Twitter has been influenced by the media coverage over some time on this topic (Succar et al., 2024). The study has explored this relationship and the results have confirmed a casual relationship with effects on the police with an increase of negative sentiment on Twitter about the police across metropolitan areas in the United States. Furthermore,

they observed an increase in negative tweets following the occurrence of raised media coverage of police brutality, particularly in the case of George Floyd's murder. The methodology chosen to proceed with the study was sentiment analysis with the use of the DeBERTa model, known as an exemplary form of modeling, transfer entropy analysis to predict the future of the variables under study and to independently its findings, convergent cross mapping was employed.

Portuguese media portrayal of education is limited, as it is mostly influenced by PISA and the OECD agenda (Santos et al., 2022). The media coverage focuses on the performance of students in Portugal and frames PISA results. The narratives might be of success or failure, thus creating a cycle of sentiment in the public, that being praise or blame. Influenced by these results and external factors, the media shapes public opinion by simplifying educational narratives. The methodologies used in the paper consist of content analysis and frame analysis. Content analysis explored themes discussed, by employing deductive and inductive approaches to established themes on education and PISA. To identify these themes software assisted through coding in the identification of the themes. Frame analysis was used to present angles used by the media and how the PISA results were presented. The focus of the analysis was the way public opinion might have been shaped by the framing of the results online.

Political communication via social media was associated with an extremity of attitudes towards institutions and the Umbrella Movement in Hong Kong (Lee, 2016). The paper discovered that public sentiment became more polarized as the political tensions were at a culminant peak during the movement. The Author of this study took variables like extremity, measured with a Likert scale, use of social media, measured by time and frequency of political discussions, and trust levels in institutions in China. Statistical analysis techniques like multiple regression were used in the analysis process to test the hypothesis about the relationship between the variables of the study.

## 3. DATA AND METHODOLOGY

The data utilized in this study comprises public perceptions expressed through comments and corresponding engagement metrics, such as likes per comment, directed towards influential figures, notably including Emmanuel Macron, regarding their positions on the Israel-Palestine conflict. The selected timeframe for data collection spans from June to December 2023, a period corresponding to significant developments and escalations within the ongoing conflict.

To gather this dataset, the authors employed data scraping techniques tailored to extract content from prominent social media platforms such as Facebook and Twitter. These platforms were selected due to their widespread usage and influence in shaping public discourse. The scraping process focused on capturing user-generated content related to discussions, comments, and reactions about the Israel-Palestine conflict, particularly those directed toward key political figures. In total, the dataset consists of 1100 profiles and comments under Macron's post. By analyzing interactions with content featuring these figures, we aim to gain insights into the broader sentiment and perceptions surrounding the conflict within the digital sphere.

Furthermore, our objective is to expand and enhance our dataset to foster a more robust and comprehensive understanding of the correlations between the variables under investigation. This iterative approach aims to refine our analysis and facilitate a nuanced exploration of the relationship between social media engagement, public perceptions, and political discourse surrounding the Israel-Palestine conflict.

## 3.1. Methodology

In this study, sentiment analysis serves as a fundamental component of the methodological framework. Employing natural language processing (NLP) techniques, the authors conduct an in-depth exploration of the sentiment dynamics prevalent within social media discussions pertaining to the Israel-Palestine conflict. Through the systematic analysis of textual data derived from user-generated content, including comments and posts, we seek to discern and categorize the prevailing sentiments expressed by social media users.

The application of sentiment analysis enables us to elucidate patterns and fluctuations in public sentiment over temporal intervals. By discerning the nuances of positivity, negativity, or neutrality within discourse, we aim to uncover the underlying attitudes and perceptions of social media participants towards various aspects of the conflict. Furthermore, this analytical approach facilitates the identification of salient shifts in sentiment in response to significant events or developments within the Israel-Palestine conflict landscape.

The authors of the study endeavored to refine the parameters for message content search by constructing a specialized "sentiment dictionary," also known as a "sentiment lexicon." This lexicon comprises a curated list of words categorized according to their positive, negative, or neutral connotations, either through manual classification or leveraging natural language processing (NLP) techniques. In this study, the authors opted for the AFINN dictionary, developed by Finn Årup Nielsen (2011), as our chosen sentiment lexicon.

One notable advantage of the AFINN dictionary lies in its explicit incorporation of intensity levels, represented on a scale ranging from -5 to +5. This granularity allows researchers to distinguish between nuanced expressions of sentiment, facilitating the identification of extremely negative or extremely positive responses within the analyzed content. By utilizing this scale, the authors can exclude neutral responses and focus exclusively on sentiments positioned at the far ends of the spectrum.

Moreover, the study implemented a strategic refinement of the lexicon by setting a threshold for inclusion, restricting the analysis to words with score magnitudes of at least 3 (either positive or negative). By imposing this criterion, the study aimed to minimize the influence of neutral responses and concentrate on sentiments situated at the extremes of the response scale. This methodological approach enabled researchers to improve on the most salient expressions of sentiment within the analyzed data, thereby enhancing the precision and relevance of the study's findings.

Additionally, this study employs simple linear regression analysis as a statistical tool to explore and quantify potential relationships between key variables, including media influence, temporal patterns, and user behaviors, and their impact on the political discourse surrounding the Israel-Palestine conflict. Through regression modeling, the authors endeavor to ascertain the extent to which these variables contribute to shaping the broader societal stance towards the conflict. By conducting regression analyses, the study aims to delineate causal relationships and identify predictors of sentiment dynamics and political discourse within the context of the Israel-Palestine conflict. Through a rigorous examination of the interplay between social media dynamics, public sentiment, and political discourse, this methodological approach seeks to provide nuanced insights into the underlying drivers shaping perceptions and attitudes towards this complex geopolitical issue.

## 4. RESULTS

To run the sentiment analysis, the authors used NLP language and data visualization techniques to analyze sentiment, dynamics, and potential patterns in the dataset, but to also resonate with broader findings from the role of social media in shaping the perception of conflicts.
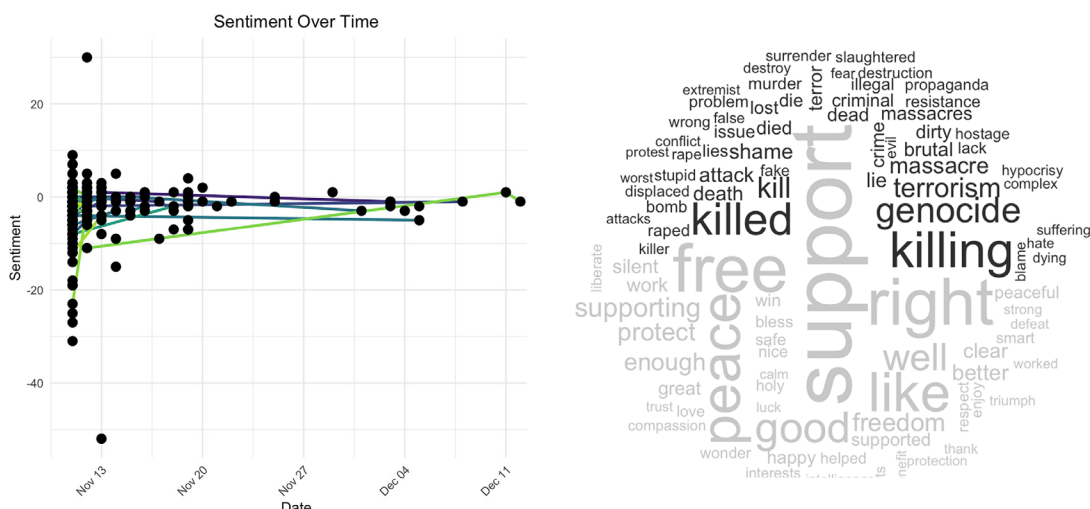


**Figure 1.** Sentiment Analysis of Israeli-Palestine conflict, November to December 2023
**Source:** Own calculations

In the depicted figure, the authors present a sentiment analysis of the discourse surrounding the Israel-Gaza conflict, focusing on the period from November to December. Utilizing sentiment scores derived from the AFINN sentiment dataset, wherein higher values correspond to positive sentiment and lower values denote negative sentiment, the authors construct a line graph illustrating the temporal evolution of sentiment over this timeframe. The graph reveals fluctuating emotional dynamics, characterized by peaks and troughs, albeit with an overall downward trend. This observation suggests that influential political figures, such as President Macron, have the capacity to evoke varied public sentiments and potentially contribute to the escalation of turmoil through their expressions of support. Moreover, the initial rise in emotional responses was followed by a stabilization over time. This phenomenon aligns with studies done on emotional contagion and normalization. In these studies, exposure to contents charged with high emotional nature could lead to reduced functional responses (Yec, 2023).

Furthermore, the authors augment their analysis by presenting a visual representation derived from the sentiment analysis, aimed at facilitating a nuanced understanding of the thematic content underlying public discourse. This visualization delineates prominent keywords extracted from comments under President Macron's posts, segregated into positive and negative sentiment categories. Notably, keywords associated with negative sentiment, depicted in shades of gray, include "genocide," "killing," "terrorism," and "massacre," indicative of the prevalence of themes evoking grievance and condemnation. Conversely, keywords indicative of positive sentiment, symbolized by lighter shades of gray, encompass terms such as "support," "peace," "good," and "freedom," underscoring themes of solidarity and aspiration toward peaceful resolution.

The observed trends align with extant literature elucidating the impact of political discourse on public sentiment during conflict contexts. Scholars have documented the propensity for political rhetoric to influence and shape public perceptions, exacerbating tensions or fostering

reconciliation, depending on the framing and messaging employed (Entman, 2004; Tsfati & Cohen, 2005). The predominantly negative sentiment around the period when the wave of conflicts between Israel and Gaza suggests insights indicating the extremity and emotional nature of discussions around discourse (Kubin & Von Sikorski, 2021; Lee, 2016). Adding to this, the negative sentiment also corresponds to the tensions of the Israel-Gaza conflict, intensified by media and online discussions, similar to the case of police brutality in the United States (Succar et al., 2024). This mechanism underscores the significance of political communication in shaping societal responses to conflict and underscores the potential ramifications of leaders' statements and actions on public sentiment and social cohesion.

Lastly, based on the results of the regression analysis using a simple linear regression model, the results state a positive relationship between sentiment score and the number of likes each comment has received. Interestingly, the authors conclude that the higher the number of likes, the greater the sentiment score will be. Suggesting that a positive and happy sentiment received more likes than when commenting negatively. Even though the magnitude of the results is small, it is significant enough at the 5% level to conclude that the number of likes greatly affects the emotional score.

**Table 1.** Regression Analysis Results

|  | Dependent Variable |
| --- | --- |
|  | Sentiment Score |
| likesCount | 0.063*** |
|  | (0.005) |
| Constant_ | −5.825*** |
|  | (0.055) |
| Observations | 1100 |
| R2 | 0.04 |
| Residual Std. Error | 11.274 (df = 44933) |
| F Statistic | 166.324*** (df = 1; 44933) |

**Note:** *p<0.1; **p<0.05; ***p<0.01

**Source:** Own calculations

## 5.  CONCLUSION

This study employed Twitter and Facebook data featuring world politicians and public figures to investigate the impact of social media on public perceptions of the Gaza-Israel war. Through a combination of sentiment analysis and regression analysis, the study sought to elucidate the underlying mechanisms driving the relationship between political communication via social media and the extremity of individuals' attitudes toward the conflict.

The findings of the study revealed a positive relationship between political communication on social media platforms and the extremity of individuals' attitudes towards the Gaza-Israel conflict. By analyzing sentiment scores and the number of likes received by each comment, the study identified a statistically significant relationship, albeit with a moderate effect size. Notably, the analysis revealed heightened emotions in the initial days following the announcement of posts related to the conflict, with sentiments gradually stabilizing and trending towards neutrality over time.

Of particular significance is the focus of the study on the spontaneous, impulsive, and emotional responses of the public towards political support actions, rather than rational assessments of

the political topics surrounding the war. This aspect of public opinion is deemed critical in the context of our hyper-connected society, where knowledge dissemination and creation occur predominantly through mass and social media channels.

The study's findings underscore the profound influence of social media on shaping public perceptions and attitudes towards complex geopolitical issues such as the Gaza-Israel conflict. By elucidating the mechanisms through which political communication on social media influences individual attitudes and sentiment dynamics, this study contributes valuable insights to our understanding of the interplay between social media dynamics and public opinion formation in contemporary society. Furthermore, it highlights the importance of considering emotional responses alongside rational assessments in the analysis of public discourse surrounding politically charged topics on social media platforms.

Crucially, the study prioritized examining spontaneous and emotional responses over rational assessments, reflecting the significance of emotional resonance in our media-saturated society. However, future research endeavors could extend beyond sentiment analysis and regression techniques to explore new methodologies such as Conditional Transfer Entropy and Media Polarization analysis. These approaches offer innovative avenues for dissecting the intricate dynamics of social media influence and public opinion formation in the context of geopolitical conflicts.

Moreover, future studies could design experiments to investigate the role of asymmetric information about the war and its impact on political support. By manipulating the dissemination of information among participants, researchers could elucidate how varying levels of knowledge and exposure influence individuals' attitudes and behaviors toward the conflict.

Additionally, expanding the dataset to include data from a broader spectrum of politicians, such as the US president, European Prime Ministers, the Prime Minister of Turkey, and the President of Russia, would enrich the analysis and provide a more comprehensive understanding of global political discourse surrounding the Gaza-Israel conflict. By incorporating diverse perspectives and voices, future studies can capture the nuanced dynamics of international political communication on social media platforms.

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# Characteristics of Communication through Online Social Networks in Central Public Institutions in Romania

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**Abstract:** *This paper examines how central public institutions in Romania use social media to communicate with citizens. The study investigates how these institutions use Facebook to engage with their target audiences and what factors influence the number of followers they have. The research methodology involves examining the activity of the Facebook pages of these institutions. The findings reveal significant differences in fan engagement across different pages. Moreover, post types and frequency do not have a high impact on page growth compared to the number of shares. The results highlight that although there is a communication plan in place by the central public administration in Romania, there is no uniform communication across the ministries.*

## 1. INTRODUCTION

Communication is one of the most important aspects that facilitate the smooth functioning of society and the interactions that take place in this sphere. According to Ihlen and Heath (2018, p. 3), organizations need to communicate to be able to convey their messages and values to their stakeholders. The last decades have been challenging for organizations as they have faced a dynamic environment characterized by specialization of work, outsourcing of various processes, globalization, and more. Technology has been an area of accelerated expansion that organizations have had to keep pace with. Social networks have a positive impact on the work of public institutions, with benefits such as increased citizen engagement (Kleinhans et al., 2015), transparent communication and streamlined communication processes.

## 2. PUBLIC INSTITUTIONS AND SOCIAL MEDIA ADAPTATION

Urs (2015, p. 127) states, "The need to use social media is also related to the obvious fact that by not participating in the discussion, public institutions would lose the possibility of setting or influencing the public agenda and would have to play the role of <<firefighter>> all the time, trying to extinguish the flames of controversies after they have turned into fires". Society tends to move quickly and accept the benefits that social media offers in this regard, and public institutions cannot be left behind. An institution's online presence allows it to keep abreast of what citizens think about it, giving it the ability to easily and quickly debunk false information that denigrates the organization. According to Karakiza (2015, p. 385), these technologies can reshape the old public sector model because they offer many opportunities that: increase government transparency and trust in government. By adopting these tools, governments can get closer to

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their followers by creating close connections that facilitate the dissemination of information. These social technologies have made it easier for government organizations to fulfill their mission. What is the difference between public and private sector communication?

Public sector organizations are first and foremost a legitimate power that cannot function properly without respect for democracy (or force in the case of totalitarian regimes). Moreover, these public sector organizations operate on a case-by-case basis at the national, regional or local level. They include both politically elected individuals (e.g., mayors, local councilors, ministers, etc.) and appointed officials and volunteers. Although the public sector is becoming increasingly similar to the private sector, there are still certain characteristics that set it apart.

First, decisions are much harder to make in public organizations than in private organizations. This is due to the multitude of procedures and processes that must be followed in order to make a decision. All decisions in public institutions follow a long and laborious path before they are made. This makes the decision-making process very difficult and delays the smooth running of things. Bjornholt and Houlberg Salomonsen (2015, p. 513) found that public institutions argue with and through the political environment, which affects resources, time, staff, and goals. Since the political environment is constantly changing and institutions are directly linked to this environment, they must adapt and act accordingly. This entanglement in the political environment can create uncertainty and various disruptions in the information and public relations work that an institution undertakes.

Second, the often intangible nature of the services provided by the public sector makes it difficult to analyze the impact and success of the final product. For this reason, citizens often have the impression that these institutions are not well-sized and that the resources used by some of them are far too large. According to Falco and Kleihans (2018, p. 1), social media is increasingly used to communicate and transmit information to followers. However, government interaction on social platforms requires a different approach than traditional communication through press releases, official addresses, etc. With the help of social platforms, government institutions can increase citizens' trust in the institution by forming opinions that are shared by citizens, thus increasing the impact of messages sent by citizens through these tools. According to Mergel and Bretschneider (2013), as with other information and communication technologies, which were initially designed for personal and commercial use, three stages are required.

In the first phase, called experimentation and intrapreneurship, these technologies are used by members of the organization for personal purposes, without any work activity. This also applies to social media tools, as these platforms are initially used by individuals for non-business purposes. The second phase, called chaos ordering, is an intermediate phase of the process in which parts of the technologies offered by the new platforms are selected and tested by different actors in the organization in order to be implemented within the organization. Even if the intrapreneurs who have tested the functionalities for their own purposes have found various easy uses for them, the risks to which information and data are exposed by using these functionalities must also be considered. In this respect, the organization would have to go through some processes to implement and standardize these functionalities. The last stage, the third stage, called institutionalization, is when the use of this procedure makes no difference, regardless of who uses it in the organization. However, this aspect is overestimated, because in the case of custom in practice, there is a constant implementation of new elements and their testing. The only novelty at this stage is that the organization has established standards, rules and procedures to control the process and has allocated various resources to carry out these activities.

The principles of the Open Government Partnership - participation, collaboration, and transparency - are the foundation for these changes, and as Schnell (2020, p. 1609) reports, the combination of technology, with all its benefits, and open government is a mix that has the potential to strengthen the exercise of civil rights and liberties.

According to Criado and Villodre (2020, p. 255), the potential for communication and interaction offered by social media has attracted the interest of the academic community in the impact of Web 2.0 in public administration in recent years. In light of this, more emphasis should be placed on online communication by institutions to facilitate all interactions that citizens have with government agencies. Bertot et al. (2010, p. 266) found that the opportunities arising from the implementation of social media tools by public administrations are: engagement, direct participation and co-productivity. In addition, when communication becomes two-way, citizens are encouraged to become more active in government processes and public policies, increasing their activity and taking an active role in transforming public services.

## 3. COMMUNICATION IN ROMANIAN GOVERNMENTAL INSTITUTIONS

Urs (2022) notes that for Romania, a high presence on Facebook (Briciu & Briciu, 2021) has been identified, as it is the most used social network among public institutions. In terms of the total number of active users of online social networks in Romania, it amounts to 13.3 million people or 69.7% of the population. Of these, according to the same study, 9.9 million are Facebook users. Briciu and Văcaru (2021, p. 301) stated that the management of public content, on the Internet, is becoming a specific activity for both communication specialists and HR.

Badea (2014, p. 70) stated that "public opinion has the opportunity to have its say, this mode of communication is also an opportunity to reach the target audience more easily". Thus, it can be considered that the use of social networks at this level is an opportunity to reach out to citizens and ask for their opinions to achieve different public policies and more. Even if the above-mentioned study shows that the overwhelming majority of the Romanian population belongs to the category of social media users, over time, various limitations have also been identified, resulting from hesitant users who do not know how to use social media, and whether it is the uncertainty of the users or the reluctance of the organizational environment to adapt, all these aspects represent an obstacle to the modernization of the way of communicating with citizens.

According to Zeru (2021, p. 214), the relationship between citizens and authorities is changing thanks to technological progress, an aspect that also influences government communication, these communication channels need to be thought through and planned in detail because the success of government communication depends on the quality of the relationship between organizations and their audiences.

## 4. RESEARCH METHODOLOGY AND STATISTICAL DATA

This research aims to identify and measure the impact of online communication by central public institutions in Romania on target audiences. This study answers the following questions: (1) How do public institutions in the Romanian central apparatus use the social network Facebook to communicate and maintain a relationship with citizen-followers? (2) How engaged are citizen-followers with the Facebook pages of the Romanian central administration? (3) What factors influence the number of followers of central public institutions in Romania?

The research methodology includes two types of research, analyzing the activity of the Facebook pages of the institutions included in the study: Ministry of Transport and Infrastructure, Ministry of Finance, Ministry of Internal Affairs, Ministry of Foreign Affairs, Ministry of Justice, Ministry of National Defense, Ministry of Economy, Ministry of Energy, Ministry of Agriculture and Rural Development, Ministry of Environment, Water and Forests, Ministry of Development, Public Works and Administration, Ministry of Investment and European Projects, Ministry of Labor and Social Solidarity, Ministry of Health, Ministry of Education, Ministry of Entrepreneurship and Tourism, Ministry of Research, Innovation and Digitization, Ministry of Family, Youth and Equal Opportunities, Ministry of Culture, Ministry of Sport and the Government of Romania.

The research was conducted using the research design developed by Bonsón and Ratkai (2013) and presented in Table 1, as well as an inferential analysis based on a regression model.

**Table 1.** Metrics for Stakeholder Engagement

| Popularity | P1 | Number of posts liked/total posts | Percentage of posts that have been liked |
|---|---|---|---|
|  | P2 | Total likes/total number of posts | Average number of likes per post |
|  | P3 | (P2/number of fans) × 1,000 | Average number of likes per post per 1,000 fans |
| Commitment | C1 | Number of posts commented/total posts | Percentage of posts that have been commented |
|  | C2 | Total comments/total number of posts | Average number of comments per post |
|  | C3 | (C2/number of fans) × 1,000 | Average number of comments per post per 1,000 fans |
| Virality | V1 | Number of posts shared/total posts | Percentage of posts that have been shared |
|  | V2 | Total shares/total number of posts | Average number of shares per post |
|  | V3 | (V2/number of fans) × 1,000 | Average number of shares per post per 1,000 fans |
| Engagement | E | P3+C3+V3 | Stakeholder engagement index |

**Source:** Bonsón and Ratkai, 2013

The period for which the analysis was conducted is 90 days, from October 14, 2022, to January 11, 2023.

In terms of activity and number of fans recorded on the Facebook social platform pages of the analyzed institutions, the following values were identified, as presented in Table 2.

**Table 2.** Level of activity and number of fans of the public institutions analyzed

|  | Activity | Number of fans |
|---|---|---|
| Mean | 134.62 | 154,657.14 |
| Median | 128.00 | 46,000 |
| Minimum | 14 | 4,300 |
| Maximum | 283 | 954,000 |
| Standard Deviation | 83.058 | 248,823.913 |

**Source:** Own calculations

As far as the number of fans is concerned, an average of 154,657 fans was recorded for this variable. However, at the sample level, high heterogeneity was found, with the institutions included in the study having between 4,300 and 954,000 fans. This may be because some public institutions have a lower profile among their followers, which may be related to the field in which the ministry is active, or to the evolution of the government's composition, which has been characterized by an unstable number of ministries, some of which were created later.

Table 3 presents four indicators used to measure the level of interaction/ engagement that public institutions have with citizens through their pages on the social platform Facebook.

**Table 3.** Descriptive statistics of main variables

| | Level of popularity (P3) | Level of commitment (C3) | Level of virality (V3) | Engagement (P3+C3+V3) |
|---|---|---|---|---|
| Mean | 2.4803 | 0.5589 | 0.4663 | 3.2610 |
| Median | 0.9336 | 0.1704 | 0.2461 | 1.4600 |
| Minimum | 0.2222 | 0.0125 | 0.0187 | 0.2610 |
| Maximum | 21.3140 | 5.2842 | 2.6980 | 26.5058 |
| Std Deviation | 4.5830 | 1.2010 | 0.7182 | 5.7329 |

**Source:** Own calculations

As can be seen in Table 3, there is a significant difference between the mean of the popularity level (2.4803) and the mean of the commitment level (0.5589) and the virality level (0.4663). The value of the standard deviation again confirms the lack of homogeneity of the subjects included in the research. The values recorded for the variables measuring the level of stakeholder engagement confirm those previously confirmed regarding the heterogeneity present among the institutions analyzed in terms of the relationship with citizens, with a mean of 3.2610, a median of 1.46 and a high standard deviation of a value of 5.7329.

Regarding the correlation of these engagement variables with the activity of the analyzed pages, according to Table 4, there were no significant correlations, the indicators having values in the range (-0.315 and +0.001). These results indicate that there is no significant relationship between page activity and the level of citizen engagement. Thus, increasing the number of posts is not necessary to increase the level of engagement that citizen-followers have with page activity.

**Table 4.** Correlation coefficients of the variables

| | Activity |
|---|---|
| P3 | -0.273 |
| C3 | 0.001 |
| V3 | -0.315 |
| I | -0.288 |

**Source:** Own calculations

Moreover, to identify a possible correlation between the number of fans and different variables present in the functioning of these dedicated pages on Facebook social networks, the authors conducted an inferential analysis consisting of a simple linear regression.

At the same time, in the researchers' attempt to identify a possible correlation between the number of fans that a page of one of the public institutions of the Romanian central government has, the analysis also includes an inferential analysis carried out using a regression model. First, Table 5 presents the main descriptive statistics of the variables used, in terms of mean, mean square deviation, minimum and maximum.

**Table 5.** Descriptive statistics of main variables

| Name of the variable | No. of observations | Mean | Std error | Minimum | Maximum |
|---|---|---|---|---|---|
| Number of fans | 21 | 191480.4 | 289919.1 | 289 | 954,000 |
| P2 | 21 | 257.2543 | 623.7176 | 6.33 | 2615.66 |
| C2 | 21 | 42.16402 | 102.5555 | 0.94149 | 459.875 |
| V2 | 21 | 36.20901 | 68.65795 | 0.72781 | 272.625 |
| I | 21 | 3.256794 | 5.73283 | 0.26058 | 26.5058 |
| Number of posts | 21 | 134.619 | 83.0581 | 14 | 283 |
| Number of links | 21 | 44.004,14 | 111.648,8 | 641 | 417,441 |
| Facebook Check Status | 21 | 0.952381 | 0.2182179 | 0 | 1 |

**Source:** Own calculations

As can be seen in Table 5, an analysis was made of the data that these Facebook pages presented at the time of this study, between October 14, 2022 and January 11, 2023. In terms of the subjects analyzed, the page with the highest number of Facebook followers is the page of the Ministry of Internal Affairs. To study this phenomenon, the following table has been prepared, which shows the correlation coefficient that the descriptive and independent variables have. From this table, as expected, the variables have values in the range [-1, +1], an aspect that confirms a low correlation between the variables, giving us additional certainty regarding the use of these variables in performing the regression.

**Table 6.** Correlation coefficients of the explanatory variables in the regression model

| | No. of fans | P2 | C2 | V2 | I | No. of posts | No. of likes | Facebook Check Status |
|---|---|---|---|---|---|---|---|---|
| No. of fans | 1 | | | | | | | |
| P2 | 0.7331 | 1 | | | | | | |
| C2 | 0.6972 | 0.9573 | 1 | | | | | |
| V2 | 0.7659 | 0.9640 | 0.9311 | 1 | | | | |
| I | -0.1598 | 0.0043 | -0.0223 | -0.0219 | 1 | | | |
| No. of posts | 0.3212 | 0.1900 | 0.0928 | 0.1448 | -0.2878 | 1 | | |
| No. of likes | 0.6889 | 0.9148 | 0.7847 | 0.8991 | -0.0242 | 0.3626 | 1 | |
| Facebook Check Status | 0.1479 | 0.0608 | 0.0702 | 0.0821 | -0.9292 | 0.2610 | 0.828 | 1 |

**Source:** Own calculations

In this analysis, presented in Table 6, the authors aimed to find out whether the activity of a ministry has an impact on the engagement and connection that citizens pursue with the work of their ministry.

**Table 7.** Reporting regression model results

| Explanatory variable | Regression coefficient | Standard deviation |
|---|---|---|
| Average number of likes per post | 555.5844*** | 646.8446 |
| Average number of comments per post | -2675.121*** | 2756.141 |
| Average number of distributions per post | 5444.38*** | 2851.059 |
| Stakeholder Engagement Index | -23510.37*** | 22491.03 |
| Number of posts | 1025.589*** | 695.557 |
| Number of likes | -2.352725*** | 1.980935 |
| Facebook Check Status | -528604.4*** | 576221.7 |
| The constant | 509679.2*** | 628467 |

**Source:** Own calculations

From Table 7 we can see that as the number of likes a post receives increases, there is a tendency for the number of fans to increase. This can be explained by the reaction, of whatever type so that the user marks that he has seen this post and that he likes it, or that it triggers different feelings depending on the reaction he applies to the post. At the same time, according to this study, an increased number of comments on a post, leads to a decrease in the number of fans, probably because these comments are often not always positive.

As for the increase in the average number of shares that a post receives, this leads to an increase in the number of fans of the pages analyzed, which is not particularly surprising, since increasing the number of shares that a post receives, certainly reaches a greater number of people, friends on Facebook. According to the data, the increase in the average number of shares per post is a highly significant variable, because if this variable increases by one point, the number of fans is expected to increase by 5444.38*** (1% significance level).

The Stakeholder Engagement Index is a variable showing how engaged citizen followers are with the page and is composed of the activity they have with the page and their interaction with it. Thus, according to the study, as the engagement index increases, the number of fans decreases. This index is composed of the variables presented above, coded V3, P3 and C3, variables that process the data of all the pages to compare these indicators, these variables are reported on a number of 1,000 fans, so that the data can be compared without differences between pages.

As for the number of posts, this has a positive impact in terms of the number of fans, because by increasing the number of posts, the page increases its notoriety and appears more often in the feed, becoming visible and through these appearances, it has the opportunity to attract new citizen-fans to their community.

Similarly, in the case of the total number of likes, a negative influence can be identified, although small compared to the other regression coefficients. This shows that an ideal that the page of these institutions should have, is not to increase the number of likes, but to make content that makes people distribute it to reach more people and thus increase the number of hits and subscriptions that a page has.

As for the Facebook Check Status variable, it is different from the others, as it is a dummy variable. In this research, the variable measures whether a page has that tick that Facebook gives to official pages or not. As can be seen, this variable has a regression coefficient of 528604.4***(1% significance level), which shows the importance that this value has for a page and the number of fans that page has. If the page does not receive this verification from the online social network, the number of followers is substantially lower according to the data in the study.

## 5.    RESULTS AND DISCUSSIONS

Several aspects of the research were found and are explained below.

Firstly, even though they operate within the same government, all the institutions analysed, being ministries or the government institution itself, show high heterogeneity in terms of the number of fans and the number of posts. This occurred as a result of a different engagement in terms of the communication that these central institutions make with citizen-followers through the online social platform analyzed (Facebook), with a large discrepancy in followers (minimum number of 4,300 followers and maximum number of 954,000 followers), representing approximately 222 times more followers for the most followed ministry compared to the ministry with the lowest number of followers.

Secondly, in terms of popularity, level of engagement, level of virality and finally, the stakeholder engagement level index, these values present a novelty for this research, as the highest stakeholder engagement index (26.51) is recorded by the Ministry of Family, Youth and Equal Opportunities, a ministry that distinguished by having the lowest number of followers on the social platform (4,300). Thus, these values show that in the case of this ministry, even if there is not a high number of followers forming the community around it, the quality that they have greatly increased the level of engagement for this ministry. Specific tests were also carried out to determine the level of correlation between these variables mentioned above (popularity, level of engagement, level of virality and index of level of engagement) and the activity that a page has, as they are not correlated.

Third, to find a possible link between the number of fans and the different variables that ensure the proper functioning of these Facebook pages, a simple linear regression was performed. In order to be sure that this regression model is correct, the correlation between the variables included in the study was checked; there are seven of them (average number of likes/posts, average number of comments per post, average number of shares per post, stakeholder engagement level index, number of posts, number of likes, Facebook Check Status), and as a result values in the range [-1, 1] were obtained, which eliminates the possible existence of a correlation between the independent variables. After performing regression, the authors found that, of the variables included in the study, the highest impact had the average number of shares per post which showed a regression coefficient of 5444.38, a result that proves that the shares a Facebook page receives are a relevant factor for their growth. At the opposite pole is the dummy variable on Facebook Check Status, which has a value of -528,604.4. Thus, in the study, pages that are not verified by Facebook tend to have a lower number of followers.

## 6. FUTURE RESEARCH DIRECTIONS

Future research can use these tools to analyze other areas of communication, such as County Councils, Town Halls, and other websites. In this study, these tools were used to analyze the interaction, engagement and factors influencing the activity and proper functioning of these sites.

Due to the location of the institutions analyzed, i.e. in the Romanian capital Bucharest, it was not possible to make a comparison based on the areas of origin of these institutions, as could be done for the other types of public institutions mentioned above.

## 7. CONCLUSION

This paper used inferential analysis to analyze the pages that these institutions have on the social platform Facebook. The results of the analysis showed that as the number of shares of posts increased, an increase in the number of followers was observed. Oviedo-García et al. (2014) stated that the action of sharing requires more effort, which causes the post to appear on each individual's page, thus creating an association between the post and the individual that is seen by everyone in the individual's friend list.

Although there is a communication plan for the central public administration in Romania, there is no unified communication among the ministries (Zeru et al., 2023) that make up the Romanian government. The reasons for this are different areas of activity, different audiences, and even poor communication between departments. These factors represent barriers that have a strong impact on the effectiveness of communication and beyond (Briciu et al., 2020). Therefore, it is necessary to optimize and reduce the impact of political and human factors.

To achieve more effective communication through social networks, it is necessary to correctly identify the target audience that the institution has. It is also necessary to develop a communication strategy with clear objectives that meet the needs that the institution has, and finally, it is necessary to produce relevant content for these audiences, which are different from institution to institution, so homogenization and uniformity among these institutions is impossible.

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# Safety Stock Studies in Aerospace Organisations in Times of Transformation

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**Abstract:** *Amid the ongoing recovery from the disruptions caused by COVID-19 in aviation supply chains, optimizing resources is crucial for competitiveness and cost reduction. Major aircraft manufacturers have been ramping up their programs, placing added pressure on supply chains to adapt. Effective supply chain management requires careful inventory optimization, with Safety Stock (SS) playing a crucial role as a buffer against stockouts or disruptions. SS can be strategically placed before or after production to address uncertainties. This gap in niche areas, affecting various sectors beyond aerospace, underscores the need for a thorough examination of challenges faced during times of transformation. Factors influencing SS creation and decisions regarding Make/Buy items were explored, along with the optimal placement of SS within the Bill of Materials (BOM). To navigate these complexities, in this paper, the authors have applied qualitative methodologies involving interviews with key stakeholders from procurement, production, and planning. Successfully managing times of change requires a nuanced understanding of a company's operations, emphasizing the importance of effective SS management in turbulent times.*

## 1. INTRODUCTION

In recent years, numerous approaches have been proposed to improve operations performance. Three in particular, just in time, supply chain management, and quality management, have received considerable attention. While the three are sometimes viewed and implemented as if they were independent and distinct, they can also be used as three prongs of an integrated operations strategy (Kannan & Tan, 2005). However, in this paper the author wants to focus solely on the role of Supply Chain Management and in a broader term of "quality", meaning the higher quality and efficiency of the safety stock and inventory internal regulation.

"The level of customer satisfaction largely depends on the manufacturer's ability to respond to customer orders with promptness" (Shivsharan, 2012).

With these words it is intended to stress the importance of a nimble organisation, allowing responsiveness in case of either a spike in demand or unforeseen cases on the customer side, as well as the organisation's side.

### 1.1. Dynamics of Supply Chains

Each day, markets are growing increasingly stringent, and businesses are adapting in a variety of ways. In the context of forecasting within a demand-driven supply network, the goal is to determine the likely spectrum of anticipated demand. This ensures that the supply can meet demand throughout the statistical span. This coverage can be achieved either by having the capability to replenish within predefined lead times or by maintaining an excess inventory,

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commonly known as safety stock. In the present era, numerous enterprises allocate substantial resources and financial investments to establish the optimal level of safety stock and decrease associated costs (Persona et al., 2007).

In contemporary supply chain dynamics, a heightened susceptibility to recurrent disruptions has become apparent, accentuated by the relentless pursuit of operational efficiency, which often lacks the requisite resilience to effectively contend with such disruptions. Addressing this challenge entails a two-fold approach: first, the capacity to proactively forecast impending disruptions; and second, the ability to discern and implement optimal strategies under conditions of disruption. The imperative for precision and expeditiousness in forecasting assumes paramount significance within the context of supply chain management, thereby constituting a pivotal determinant in the pursuit of supply chain stability (Samvedi & Jain, 2013).

The fervent pursuit of enhancing supply chain efficacy more expeditiously and cost-effectively has engendered an escalation in complexity, interconnectivity, and susceptibility within the supply network. Beginning in the early 1990s, numerous enterprises have embarked on multifarious supply chain undertakings with the primary objectives of augmenting revenues, curbing expenditures, or downsizing their asset base. This concentrated emphasis on optimising efficiency has, however, yielded unfavourable repercussions on the delicacy and insecurity of these intricate supply chains (Samvedi & Jain, 2013).

Supply chain executives within IBM hold the belief that supply chain risk management (SCRM) ranks as the second most consequential concern in their purview, as delineated in the IBM report of 2008. Furthermore, research conducted by AMR in 2007 reveals that a substantial 46% of executives concur with the imperative need for an enhanced SCRM framework, as conveyed by Hillman and Keltz (2007). Nevertheless, a discerning examination of the landscape, as underscored by McKinsey in 2008, exposes a notable scarcity of enterprises undertaking commensurate measures to address this pressing concern (Samvedi & Jain, 2013).

## 1.2. Research Questions

This section is useful to understand what the aim of the research is and what scope we want to have.

**Research Question One:** What factors can influence the creation of a Safety stock?

**Research Question Two:** At what level and how deep in the Bill of Material (BOM) the Safety Stock should be created and material accumulated for future use?

At first glance these questions may appear rather simple, however, the unique nature of our research stems from the industry: Aerospace.

No industry can be as volatile as aerospace. The aerospace industry's unique combination of technological complexity, strict regulations, defence and commercial segments, and global nature makes it particularly sensitive to a range of factors that contribute to its volatility (Alogla et al., 2023).

Nevertheless, some aspects that make aerospace so unique are the constant technological advancement and innovation, the ever-changing regulatory system, the Defence vs Commercial,

Long lead times, Economic cycles and market demand (Covid-19 was a challenge, especially in aviation with grounded fleets).

For all these reasons, we approach the study very carefully, outlining unnecessarily complicated questions that hide a deeper and broader meaning behind: "How to reduce safety stock cost without compromising the reliability and responsiveness of the organisation".

## 2. BACKGROUND CONTEXT

Safety stock, often referred to as buffer inventory, constitutes an additional volume of stock retained to address fluctuations in both demand and supply. Its primary function is to act as a safeguard against potential stock shortages, thereby upholding satisfactory levels of customer service and averting instances of stockouts (Lesnaia, 2004).

Furthermore, a multitude of research emphasizes that maintaining an excessive amount of safety stock can lead to elevated expenses associated with inventory holding, storage, and the opportunity cost of capital immobilized in inventory. Such practices can incur substantial costs for organisations (Chakravarty & Shtub, 1985).

Advancements in demand forecasting and supply chain management have facilitated the ability to make more precise estimations of future demand. The utilisation of enhanced forecasting techniques and technological innovations can provide the rationale for diminishing safety stock levels (Samvedi & Jain, 2013).

Following Lean principles, as introduced by Ohno (2019) and popularised by Toyota, the focus is on the minimising waste within the production process. This encompasses the reduction of surplus inventory, thereby reinforcing the case for diminishing safety stock levels (Ohno, 2019).

### 2.1. Key to Nimble SCs

Agile supply chain strategies, centered on flexibility and responsiveness to changes, have the potential to decrease the necessity for substantial safety stock quantities. This concept has been explored in several scholarly articles addressing agile supply chain methodologies. Additionally, Vendor-Managed Inventory agreements may contribute to safety stock reduction as suppliers assume greater accountability for inventory oversight (Ahmed et al., 2022).

Elevated safety stock quantities can exacerbate the bullwhip effect, wherein minor fluctuations in consumer demand lead to amplified and more expensive variations upstream in the supply chain. Implementing approaches to diminish safety stock levels can help alleviate this phenomenon (Lee et al., 1997).

Contemporary inventory management frameworks, such as Just-In-Time (JIT) and Economic Order Quantity (EOQ), are formulated to reduce inventory levels while maintaining seamless operational processes (Kannan & Tan, 2005).

Progress in technology, such as real-time monitoring and RFID, has enabled more efficient inventory supervision and control, lessening the requirement for surplus safety stock (Li, 2011).

## 3. METHODOLOGY

Employing qualitative research methodologies emerges as the most judicious approach for conducting a thorough investigation within the aerospace sector, particularly when examining the intricate topic of safety stock. In this complex industry, there is a clear need to delve deeply into the realms of procurement, production, and planning to gain a profound understanding of the specific requirements for maintaining optimal levels of safety stock. This intricate research endeavour is best addressed through the utilization of qualitative methods, primarily characterized by interviews and discussions held with managerial personnel representing the various facets of procurement, production, and planning. It is important to acknowledge the potential contractual obligations regarding safety stock inventory, necessitating factual verification with sales personnel.

### 3.1. Qualitative Method

The primary justification for selecting qualitative research methodologies lies within the complex environment of the aerospace sector. This industry encompasses a fusion of diverse disciplines and subfields, each characterized by unique intricacies and requirements. Fundamentally, procurement, production, and planning within aerospace are interrelated components, collectively shaping the intricate logistics and operational landscape. These spheres necessitate nuanced understandings that can solely be attained through extensive dialogues and engagements with industry experts and professionals.

Qualitative methodologies, in contrast to quantitative methods, are aptly tailored for investigating the nuanced and context-dependent intricacies inherent in aerospace safety stock management. Engaging in interviews and discussions with experienced managers offers an avenue for gathering detailed, narrative-driven data. This approach facilitates a thorough comprehension of the complex interactions among these pivotal aspects and the inherent challenges associated with determining safety stock quantities.

### 3.2. Qualitative and Not Quantitative

In conclusion, for a research endeavour seeking to unravel the multifaceted aspects of safety stock management within the aerospace industry, a qualitative methodology that relies on interviews and meetings with key stakeholders from procurement, production, and planning is the most judicious choice. Such an approach not only acknowledges the inherent multidisciplinary nature of the topic but also affords a comprehensive and nuanced exploration of the complex and interrelated facets of this critical area in aerospace supply chain management.

### 3.3. Findings

Several factors impact the creation of safety stock within the aerospace sector, taking into account the principles of just-in-time (JIT) manufacturing, supply chain management (SCM), quality management, and procurement. Christopher (2016) underscores the significance of addressing uncertainties in the supply chain to sustain uninterrupted production flow. Variations in supplier lead times, transport disruptions, and geopolitical factors can disrupt supply chains, necessitating the implementation of safety stock to mitigate the risks of stock outs and production delays. Quality management assumes a pivotal role in aerospace manufacturing, ensuring adherence to rigorous safety and regulatory standards. Unanticipated quality

concerns or material defects may result in production interruptions or rework, prompting the utilisation of safety stock to uphold production continuity while addressing quality issues (Bozarth & Handfield, 2019).

Furthermore, this study has reaffirmed the importance of procurement strategies highlighted by Waters (2003) in his publication. Procurement strategies are crucial for acquiring high-quality materials and components from dependable suppliers at competitive rates. While negotiating favourable contracts and cultivating robust supplier relationships can aid in alleviating supply chain risks, the retention of safety stock may still be essential to safeguard against potential disruptions in the supply chain or quality-related concerns (Waters, 2003).

## 4.  CURRENT TRANSFORMATION SITUATION

Given the current circumstances and ongoing organisational transformation, it is prudent to proceed cautiously and await the completion of the transformation process before implementing significant changes. Empirical evidence suggests that attempting to enact profound organisational changes prematurely may result in unintended consequences. Recent research findings, as highlighted by (Patel et al., 2010), indicate that such premature efforts may disrupt existing processes and structures, ultimately diminishing operational efficiency and service levels to customers. Therefore, a judicious strategy involves allowing the transformation to unfold fully before making further adjustments, thereby minimising the risk of disruptions and optimising the likelihood of achieving desired outcomes.

Nevertheless, the decision to remove safety stock (SS) upstream in the Bill of Materials (BOM) has proven successful. This action has enabled the organisation to save resources, including money, time, and storage space, while also promoting lean practices and streamlining procurement processes.

## 5.  FUTURE RESEARCH DIRECTIONS

Upon the completion of the transformation process, it is imperative to conduct a comprehensive retrospective analysis to evaluate its execution. This retrospective examination serves as a critical learning opportunity to scrutinise how the transformation was managed and implemented. Drawing from this experience, the insights garnered can be synthesised into a handbook delineating best practices. Such a handbook serves as a valuable resource for future managers, offering actionable guidelines derived from real-world experiences. The aim is to equip future managers with the necessary knowledge to navigate similar transformational endeavours adeptly, thereby minimising the likelihood of recurrent mistakes and fostering the adoption of effective strategies (Leopardi, 2020). This approach mirrors the methodology employed in the MSc thesis by Federico Leopardi at the University of Groningen in 2020, where empirical findings were distilled into practical recommendations to inform managerial decision-making.

## 6.  CONCLUSION

The organisation functions as a dynamic system that necessitates continual monitoring and management. Recognising the appropriate junctures for intervention versus allowing the system to operate autonomously is imperative. In the context of our case study, we conducted a comprehensive analysis to assess the current state of affairs, reviewed existing academic literature,

and explored potential remedies. It became evident that excessive intervention during the unfolding of events could prove counterproductive, potentially leading to detrimental consequences post-transformation. However, our observations revealed that the decision to eliminate safety stock from partially completed articles was judicious, as evidenced by the absence of adverse impacts, as corroborated by the findings. Consequently, this decision can be deemed a successful endeavour, contributing to the overall mission of the organisation.

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# Transforming Logistics Within Modern Business Processes

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**Abstract:** *The evolution of logistics within modern business processes is a pivotal factor in achieving success and attaining a competitive edge. Leveraging available technologies and data opens up significant opportunities, primarily centered around more precise and efficient forecasting, planning, and execution of logistics operations. Adopting a proactive approach in the logistics process involves foreseeing customer needs, identifying avenues for enhancement, and clearly formulating solutions before customers articulate their requirements. This proactive stance is crucial for cultivating enduring customer relationships, amplifying sales, and elevating the overall customer experience.*

*Various facets of this transformation seamlessly intertwine and mutually reinforce one another, underscored by the potential advantages they offer businesses, including heightened visibility, cost savings, and operational efficiency. This paper investigates pivotal aspects, notably process automation, cutting-edge solutions, autonomous technologies, sustainability initiatives, collaborative efforts, and interconnection among diverse companies. Additionally, we explore the significance of predictive analytics coupled with adaptive strategies, emphasizing the imperative of adapting to emerging trends in logistics-based systems.*

## 1. THE NECESSITY OF BUSINESS PROCESS TRANSFORMATION

Business process transformation represents a fundamental change in the way an organization conducts its activities to achieve improvements in efficiency, productivity, competitiveness, or customer satisfaction (Oliva & Kallenberg, 2003; Neely, 2008).

Various factors can influence and necessitate transformation, ranging from technological advancements and their implementation into business processes to market changes, regulatory requirements, and internal needs for business improvement (Teng et al., 1994). Business process transformation requires, above all, fundamental changes in how value is created and delivered, and in how customers and stakeholders are treated (Martinez et al., 2010). Here, it is important to highlight digitalization as a transformation factor. Digitalization is advancing rapidly, primarily due to its ability to collect, utilize, and analyze vast amounts of (digital) data and information, with significant implications for every sphere of life (Peneder, 2022).

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Transforming each business process individually requires adaptation and reassessment of existing conditions, so the same approach cannot generally be applied to multiple different business processes. The essence of the digital economy lies in innovations in digital goods and services, processes, and routines inspired and enabled by digital technologies (Baruffaldi et al., 2019).

However, according to the analyzed literature (Adrodegari et al., 2017), the basic steps in business process transformation typically include:
- Generating ideas through the analysis of current processes, involving a detailed understanding of existing processes, identification of weaknesses, unnecessary steps, or workflow obstacles;
- Selecting and setting goals by defining clear transformation objectives to be achieved. This step essentially involves choosing the best idea from previously generated ideas. It most commonly involves cost reduction, increased efficiency, improved quality, or quicker response to market demands;
- Designing new processes by integrating the identified requirements. This step highlights the advantages, assesses weaknesses, and prioritizes determinations through the development of new processes. Emphasis is placed on achieving defined goals. This may involve eliminating unnecessary steps, automating routine activities, or introducing new technologies to support processes;
- Implementing new processes as a key step in executing the transformation. Implementation often requires changes in organizational structure, employee training, or the development and deployment of new software tools;
- Evaluation, or assessing the economic feasibility and environmental impact of the new business model. Through assessment and optimization, the performance of new processes is monitored, and necessary adjustments are made to achieve maximum results. This phase is ongoing and involves continuous review and improvement of processes to maintain competitiveness and organizational success.

## 2. LOGISTICS IN MODERN BUSINESS

The modern way of doing business and living demands quick reactions in all fields, including product distribution. Namely, transportation and logistics costs can range from 30% to 70% of the product's price depending on the industry (Palkina, 2022). Technological innovations driven by Industry 4.0 offer an opportunity for economic processes to play an increasingly important role in improving organizational efficiency, responsiveness, and competitiveness, particularly in manufacturing and logistics (Qin et al., 2016). The strategic advantages of logistic systems in conditions of digital competition are ensured by well-designed business models focused on change management and the integration of physical and digital components of logistic activities. Adapting the business of logistic companies to dynamically changing market conditions and new opportunities of the digital economy and technological structure of Industry 4.0 becomes highly important.

Logistics is one of the cornerstones of international trade. As more people shop online, the demand for intelligent logistics delivery services is growing, according to Spadafora et al. (2022) leading to an annual growth rate of approximately 8.5% in the logistics sector from 2022 to 2027 (Melton, 2022). New trends arising from global factors are also influencing the field of logistics. Some of these include the increased demand for contactless delivery arising during the Covid-19 pandemic, as well as doorstep delivery, which has evolved into express delivery services, characterized by guaranteed delivery times. Indeed, an increasing number of customers

are demanding faster delivery times (Pereira Marcilio Nogueira et al., 2022). The product delivery market is highly competitive, and key players in logistics are constantly introducing innovations to stay ahead of the competition (Kulkarni et al., 2022). The introduction of innovative technologies and the development of e-commerce create new business opportunities, leading to the search for new approaches to forming business models that ensure company positioning and competitiveness in the market.

## 3.  KEY ASPECTS OF TRANSFORMATION

We will mention just a few key aspects of the transformation:

- **Process automation**. Modern logistics operations often involve automating various processes such as inventory tracking, order management, and delivery routing. This helps eliminate potential human errors, increasing efficiency, and reducing costs. Logistics entails an industry with a vast amount of data and a huge number of information, including route details, customer demand patterns, and fuel consumption metrics. Tracking business expenses is essential for several reasons. It can help businesses see their costs and identify areas where they can reduce them. By understanding their costs, companies can decide how to price their products and services, allocate resources, and improve their profitability (Ding et al., 2022). A significant leap in process automation is provided by Artificial Intelligence (AI), such as cost tracking, freeing up time to focus on other tasks. AI can identify anomalies and patterns in consumption, which can help identify areas of excessive spending or potential issues (Rosario & Dias, 2023).
- **Innovative solutions and autonomous technologies**: Implementation of technological solutions, such as smart tracking devices, IoT (Internet of Things), artificial intelligence (AI), machine learning (ML) and data analytics (DA), enables better management of logistic processes. Innovative solutions lead to ideas on how to improve logistic processes, such as tracking shipments through IoT devices or applying artificial intelligence for better inventory management. AI can automate inventory management and quality control (Praveen et al., 2019), or it can be used to identify slow-moving inventory and provide recommendations on how to reduce shelf stock (Wang et al., 2023). Automation, robotics, and autonomous vehicles can be integrated into logistic processes to enhance efficiency, accuracy, and speed through route optimization, better inventory management, and faster response to changes. Companies can make informed decisions about managing their business and success (Leyerer et al., 2019).
- **E-commerce and e-logistics**: With the rise of e-commerce, the logistics sector must also adapt. This includes developing faster and more reliable delivery, as well as real-time order tracking. Real-time tracking and visibility contribute to informing customers about delivery times, as well as any changes related to their orders. This enables customers to track the status and location of their shipments, reducing anxiety and enhancing the overall experience. Additionally, providing timely information and advising customers on changes in legislation or regulations can impact logistic operations, enabling timely preparations. The seller can position themselves as an advisor to the customer, providing expert advice on optimizing logistic processes and reducing costs. An online selling company can track its expenditure on marketing campaigns (Cuzzocrea et al., 2020). Artificial intelligence can be used to identify the most effective campaigns and recommend ways to improve the performance of less effective campaigns.
- **Sustainability**: The transformation of logistic processes involves transitioning to sustainable logistic practices to reduce environmental impact. In addition to using electric

vehicles, environmentally friendly packaging, and green logistic solutions play an increasingly significant role. One of the most promising alternatives for logistic companies is addressing energy issues through green sustainable strategies, which enable nature protection, provide a social and environmental perspective on energy, and reduce the loss of social values and image (Aytekin et al., 2024). Optimizing routes and deliveries organized and tracked by logistic platforms ensures faster and more cost-effective delivery. Taking into account factors such as traffic conditions, weather, and delivery destinations, sellers can reduce delivery times and fuel costs. Modern logistic operations increasingly emphasize sustainability. This entails reducing carbon emissions, using environmentally friendly transportation means, and better waste management.

- **Collaboration and connectivity**: In the modern business environment, logistic companies often collaborate with other stakeholders in the supply chain to enhance efficiency. This includes better communication with suppliers, retailers, and other partners. Effective communication is crucial in logistics. Collaborating with reliable logistic partners enables the smooth movement of goods. This involves sharing data and insights to optimize the entire supply chain. Mutual trust among chain participants results in more flexible collaboration, enabling a better understanding of customers and more efficient service delivery (Bae, 2024). Proactiveness of the logistic system, among other things, involves informing customers about their orders through various channels, such as email and SMS notifications. Sellers should be prepared to quickly address any issues or challenges with deliveries or logistics to minimize negative effects on the customer. Artificial intelligence is one of the factors that could be used to identify trends in raw material prices and provide recommendations for negotiating better prices with suppliers.

- **Predictive analytics with offer customization**: By using historical data and machine learning algorithms (ML), sellers can predict potential delays or delivery disruptions. By identifying patterns and trends, they can take preventive measures to minimize or completely avoid issues. Machine learning can provide a more efficient, flexible, and adaptable way to optimize cost strategies (Verma et al., 2021). Based on previous interactions and customer needs, the seller can create personalized offers and solutions that best suit their specific requirements. Moreover, accurate demand prediction is crucial for efficient resource allocation and cost optimization in logistics (Yaiprasert & Hidayanto, 2024). Another important aspect is exception management, where processes are systematically predicted for handling exceptions, such as delayed deliveries or damaged goods. Handling these cases requires rapid communication with customers and providing appropriate solutions to minimize any negative impacts on the customer experience.

- **Adaptability**: Modern logistic operations require a high level of adaptability to respond quickly to market changes. Primarily, well-defined inventory management systems enable optimal stock levels. These systems can automatically trigger reorder points and help prevent stockouts or situations of excessive inventory. Communication in business relationships is considered a key factor that enhances the flexibility of service providers. Logistic firms should maintain continuous communication with freight forwarders to understand their needs, minimize misunderstandings in relationships, and adapt to all changes in requirements (Paulraj et al., 2007). In addition to regular operations, it is necessary to respond to unexpected events such as natural disasters or pandemics.

- **Data and analytics**: Many sectors of the economy expect potential benefits from digitization, such as faster access to information, improved customer experience, increased productivity and efficiency, enhanced decision-making, lower operational costs, and improved security (Rosen et al., 2015). Data collection and analysis play a crucial role in optimizing logistic

processes. This enables a better understanding of customer needs, performance tracking, and identification of areas for improvement. The benefits of artificial intelligence and machine learning, through the application of data and analytics, are not limited to consumers and enterprises alone. The integration of these technologies throughout logistics impacts the global economy (Bughin et al., 2018). This creates new employment opportunities that require specialized skills and fosters the growth of other industries supporting the logistics sector. Furthermore, the application of artificial intelligence and machine learning in logistics will help reduce pollution from exhaust gases, making it an environmentally friendly option. Analyzing logistics performance data leads to improvements, as the continuous implementation of changes and optimization enhances the overall logistic process. Building long-term relationships with customers fosters trust and continuous improvement of logistic processes.

## 4. TRANSFORMATION OF LOGISTICS COMPANIES

Major logistics players are already innovating the aforementioned trends in a manner that enhances their operations and improves customer relations.

Walmart (n.d.), a global logistics company, opened a next-generation fulfillment center in 2022, integrating human labor, robotics, and machine learning to optimize replenishment processes and exemplified by an automated storage system that condenses a 12-step manual process into just five steps. Walmart initiated the transformation of certain stores into small-scale 'market fulfillment centers,' serving as hubs for local deliveries and online order pickups. These compact warehouses boast the capacity to store thousands of items, facilitated by automated bots retrieving goods and subsequently assisting associates in fulfilling orders.

In tandem with its commitment to sustainability, UPS (n.d.) prioritizes multi-platform integration and interconnectivity, fostering synergy across the entire supply chain through its proprietary software platform, UPS Forwarding Hub. Additionally, UPS has launched the Premier initiative, aimed at addressing previously unmet logistical demands in the healthcare sector, particularly for biologic drugs. With the biologics market poised to surge from $285 billion in 2020 to an estimated $422 billion by 2025, Premier leverages RFID technology to provide customers with real-time insights into shipments, alongside provisions for return in cases of compromised integrity due to delays or temperature fluctuations.

Altana's platform (n.d.), Atlas harnesses the power of artificial intelligence to analyze extensive datasets, empowering the world's top revenue-generating enterprises, governmental bodies, and logistics service providers to model and fortify global supply chains. By insights from interconnected systems, Atlas identifies and mitigates risks, fortifying resilience in supply chains. Notably, Altana's 2022 expansion saw the inclusion of partners such as UPS, Starbucks, and Maersk. Collaboratively, they work to enhance supply chain transparency and security, particularly concerning goods susceptible to unallowed utilization.

When it comes to collaboration and connectivity, Beans.ai (n.d.) is a logistics company that maps complex locations, including secondary addresses within larger primary ones, such as residential complexes, hospitals, university campuses, or trailers, enabling delivery drivers to quickly reach precise destinations. It combines everything from satellite imagery to geographic information system automation to construct representative maps of navigable paths that aren't streets. Beans.ai has mapped over 70% of all difficult-to-locate addresses in the United States.

For instance, telecom companies, including T-Mobile and Verizon, utilize Beans for 5G and network positioning; cable companies like Cok Communications use Beans' application for cable laying. In July 2022, the company deepened its relationship with mapping company Esri to create 3D models for indoor navigation. Additionally, Beans.ai also offers its services for free to thousands of firefighters and hospital workers.

The logistics company DroppX (n.d.) is transforming its operations through fully tracked delivery options for e-commerce. Striving to keep pace with the rapidly changing world, they are focused on transforming the way goods are delivered within cities. Namely, they connect businesses and customers with independent local couriers and enable everyone to receive almost any ordered product in less than 60 minutes. What sets them apart is that they provide retailers with a magic button they can embed on their website or app to offer their customers a premium delivery experience that can be fully tracked. Thus, by leveraging DroppX's logistic services, retailers can retain revenues, maintain good customer relations, and obtain transactional data.

## 5. CONCLUSION

The transformation of business processes, including logistics, can be a complex and time-consuming process, aimed at delivering significant benefits to the organization in terms of efficiency, competitiveness, and adaptability to environmental changes. A key success factor in the transformation of business processes is the engagement of all relevant organizational factors and clear leadership of the process by management. Digitalization, alongside other components, contributes to faster implementation, leading to increased competitiveness, and consequently achieving economic, social, and environmental gains. However, it should be kept in mind that digitalization is a means to achieve a goal, not the goal itself (Yaqub & Alsabban, 2023).

Moreover, in the contemporary business environment, the transformation of logistic operations is not merely an option but a necessity for the survival and growth of companies. Introducing modern technologies for analysis and predicting future scenarios, as well as sustainability and adaptability, are key elements of this transformation. In return, this business approach can lead to cost reduction, increased customer loyalty, and positive recommendations.

Logistics represents the backbone of the global economy, but increasingly unstable economic conditions greatly impact global supply chains. Such conditions necessitate logistics companies to provide sustainable end-to-end delivery solutions, including AI resource and time optimization models, as well as risk prediction technology, anywhere on the planet. Logistics leaders will be companies that adapt quickly and efficiently to the current moment.

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# Solving the Issue of Connecting Mini Consolidation Centers in the City Territory

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**Abstract:** *Developed postal offices have been investing in new technologies for years, mainly insisting on achieving a certain level of adaptability. The emphasis has been moved from processing automatization to the analysis of changes, both in terms of the volume of mail and the needs of consumers. One consequence of such thinking is improved accessibility of delivery services. As a rule of thumb, in every larger urban territory, with the goal of satisfying consumer demand, there are multiple facilities or self-service stations whose main goal is to deliver smaller or larger quantities of goods. If we view these locations as nodes between which there are transport networks, then the existing knowledge in the area of transport networks can be used to further improve the operations of postal operators.*

*Beyond the idea of the most economical business solution, postal operators are also limited by the number of available vehicles, their capacity, deadlines for certain tasks, and other similar factors. This paper demonstrates how certain algorithms and findings in the sphere of transport networks can be adequately used in this area, too, as well as the limitations that should be taken into account.*

## 1. INTRODUCTION

Investing in new technologies, mainly to increase productivity and lower the costs of postal processes (Grgurovic et al, 2013, p. 56-65) had to cease the moment when the trend of quick changes to the postal service structure emerged, resulting from technological achievements, new communication patterns, and developing purchasing habits. According to the data published by the Regulatory Authority for Electronic Communications and Postal Services (RATEL, 2023), goods make up almost 90% of all express and courier mail in Serbia, out of which, one-third are parcels weighing up to 0.5kg.

As a consequence of such market conditions, adaptability has become imperative for operators. It can be said that a certain level of adaptability can be achieved only through ensuring a good balance between their functionalities and consumers' system of values.

An overview of consumer demand provides a clear picture of what they expect from a postal operator. For a long time, their focus has been on flexibility, where that term encompassed the

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competence of the operator to adapt to changes quickly, i.e. their ability to decrease or increase the scope of services in order to satisfy functional and additional needs. It can be described as the speed of responding and reacting to new or changed demand, the level of compatibility of the adapted services with the demand, readiness to solve emerging problems, etc.

According to Li et al. (2023) and Mohri et al. (2022), the new lifestyle and online shopping, which has been dominating retail markets – 76% of all Europeans are e-buyers – have revealed another customer preference regarding the delivery phase – predictability. In such circumstances, well-timed delivery to the home address becomes a major challenge, and last-mile delivery is the most expensive component in the retail chain.

According to He et al. (2022) in order to respond to these trends, academic literature and the postal industry have seen an increase in the popularity of out-of-home (OOH) delivery, especially for B2C packages, where it is highly likely that the recipient will not be at the address at the time of delivery, which is the main difference from B2B packages. By choosing this delivery method, recipients do not have to worry about the safety of their mail, they can pick it up on their own time, they receive all information in real-time, and they are able to choose among multiple delivery locations.

## 2. OUT-OF-HOME DELIVERY

All OOH delivery options, regardless of whether we're talking about automated parcel machines (APMs) or pick-up and drop-off points (PUDO), may be viewed as open and closed networks. The most common owners of closed networks are public postal operators, who, using their established infrastructure, disallow access for other operators. Market shifts influence changes in the operators' business policies – competing operators are collaborating and consolidating their mail flow, creating a climate of socially responsible operations. Open networks may be used as access points by multiple postal operators, courier companies, sellers, and distributors. In such systems, delivery expenses can be significantly reduced, as load consolidation and improved vehicle usage are thus available.

As OOH delivery options may be viewed as solutions in the form of mini consolidation centers located in certain spots and adequately connected, applying theoretical knowledge in transport networks and route optimization in this area is more than desirable.

According to Teodorovic (1996), establishing a connection between two locations in a city is not always done in the same way. Two locations may be interconnected via different roads, and it is also possible for no direct connection between them to exist. If two locations cannot be directly connected, their connection is formed through a point or points that are connected to both of these locations. The same method is used in organizing delivery services, with the addition that a third-point connection is acceptable when the required service quality allows it. For this reason, transport networks are organized based on routes in postal traffic (Grgurovic et al., 2013, p. 144-149).

## 3. CONFIGURING MINI-CONSOLIDATION CENTER NETWORKS IN URBAN TERRITORIES

With the goal of rational organization of mail delivery, each urban area must be divided into a certain number of delivery areas. The optimization of the process itself can be solved in multiple ways. According to Milutinovic et al. (2022), if we accept the principles of the sharing

economy, where postal operators make available to others their own resources, and, in return, may use others' resources, the development of mini consolidation centers available 24/7 to all consumers, regardless of service type or operator of choice, should go without saying.

In the organization of OOH solutions, we can apply the principles on which decentralized delivery systems are based. As the main post office, we can view any organizational unit responsible for the specific area to sort mail by mini consolidation centers.

How can we strategically define the itinerary that is to connect mini consolidation centers, so that there is a balance between the expenses and quality of service, a decrease in mileage through the elimination of second delivery attempts, while at the same time contributing to improved sustainability?

As an example, this paper uses the delivery area of the City of Belgrade, serviced by the Post of Serbia and divided into three operating units: Regional Unit Belgrade Center, Regional Unit Belgrade Venac, and Regional Unit Zemun. The input data cluster included locations and distances for mail delivery in RU Belgrade Center.

AMP and PUDO delivery, as many advantages as they have, can cause dissatisfaction among consumers due to the need to go to a different address to retrieve mail. For this reason, delivery post office locations, which are, as a rule of thumb, defined by residential blocks, can be an ideal solution. As an example of accepting this presumption, we can use the decision of the Government of Singapore to introduce "Locker Alliance', a concept of an interoperable network of OOH solutions with a maximum distance of 250 meters from public residential blocks (Lyu & Teo, 2022, pp. 2425–2443).

**Table 1.** Distances between defined locations

| | X | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| X | 0 | 16 | 20 | 16 | 29 | 17 | 20 | 23 | 22 | 18 | 23 | 20 | 26 | 25 | 27 | 34 | 17 | 18 |
| 1 | 16 | 0 | 12 | 11 | 18 | 9 | 13 | 11 | 10 | 12 | 11 | 12 | 18 | 16 | 24 | 20 | 29 | 26 |
| 2 | 20 | 12 | 0 | 9 | 24 | 17 | 8 | 19 | 15 | 9 | 15 | 11 | 16 | 23 | 20 | 26 | 35 | 31 |
| 3 | 16 | 11 | 9 | 0 | 23 | 15 | 4 | 17 | 15 | 5 | 14 | 10 | 18 | 21 | 17 | 23 | 34 | 29 |
| 4 | 29 | 18 | 24 | 23 | 0 | 13 | 19 | 8 | 14 | 20 | 10 | 21 | 23 | 10 | 10 | 11 | 19 | 17 |
| 5 | 17 | 9 | 17 | 15 | 13 | 0 | 17 | 7 | 6 | 15 | 6 | 18 | 29 | 9 | 20 | 15 | 24 | 21 |
| 6 | 20 | 13 | 8 | 4 | 19 | 17 | 0 | 16 | 12 | 5 | 12 | 12 | 17 | 19 | 19 | 22 | 31 | 29 |
| 7 | 23 | 11 | 19 | 17 | 8 | 7 | 16 | 0 | 10 | 18 | 6 | 21 | 32 | 9 | 18 | 14 | 22 | 20 |
| 8 | 22 | 10 | 15 | 15 | 14 | 6 | 12 | 10 | 0 | 10 | 6 | 15 | 27 | 14 | 17 | 15 | 24 | 21 |
| 9 | 18 | 12 | 9 | 5 | 20 | 15 | 5 | 18 | 10 | 0 | 10 | 15 | 25 | 19 | 15 | 20 | 28 | 25 |
| 10 | 23 | 11 | 15 | 14 | 10 | 6 | 12 | 6 | 6 | 10 | 0 | 15 | 23 | 9 | 16 | 11 | 20 | 17 |
| 11 | 20 | 12 | 11 | 10 | 21 | 18 | 12 | 21 | 15 | 15 | 15 | 0 | 9 | 26 | 12 | 27 | 36 | 33 |
| 12 | 26 | 18 | 16 | 18 | 23 | 29 | 17 | 32 | 27 | 25 | 23 | 9 | 0 | 30 | 12 | 31 | 41 | 37 |
| 13 | 25 | 16 | 23 | 21 | 10 | 9 | 19 | 9 | 14 | 19 | 9 | 26 | 30 | 0 | 21 | 13 | 22 | 19 |
| 14 | 27 | 24 | 20 | 17 | 10 | 20 | 19 | 18 | 17 | 15 | 16 | 12 | 12 | 21 | 0 | 19 | 27 | 25 |
| 15 | 34 | 20 | 26 | 23 | 11 | 15 | 22 | 14 | 15 | 20 | 11 | 27 | 31 | 13 | 19 | 0 | 10 | 16 |
| 16 | 17 | 29 | 35 | 34 | 19 | 24 | 31 | 22 | 24 | 28 | 20 | 36 | 41 | 22 | 27 | 10 | 0 | 12 |
| 17 | 18 | 26 | 31 | 29 | 17 | 21 | 29 | 20 | 21 | 25 | 17 | 33 | 37 | 19 | 25 | 16 | 12 | 0 |

**Source:** Own calculations

The symbol X marks the regional postal logistics center, and numbers 1-17 mark the accompanying delivery post offices. The basic idea is to demonstrate how the existing infrastructure and locations defined using different criteria can be used as mini-consolidation center locations for

various operators. The only difference compared to a public postal operator would be the starting point where the delivery vehicle begins and ends its journey. The problem boils down to projected routes the vehicles will use, which should cover all nodes, i.e. all given locations.

Table 1 provides an overview of the distance in minutes between the starting point (X) and all defined access points (1-17), as well as the distance between various access points themselves.

## 4. VEHICLE ROUTING PROBLEMS

To lower the number of air-polluting, noise-polluting, and traffic-congesting vehicles in narrower city areas, the authors used two algorithms. The first one encompasses finding the shortest routes without any other limitations – the Clarke-Wright savings algorithm. As the representative of the second group, where the limitation considered is the used time, the authors used a heuristic cleaning algorithm within the zoning-routing approach.

### 4.1. Clarke-Wright Savings Algorithm

It is well-known that the core of this algorithm is based on the traveling salesman problem, i.e. on the order in which a certain number of points should be covered, optimally only once, before returning to the starting point, all while maintaining the lowest possible mileage.

As can be seen from the table given, the distances between any two nodes are symmetrical. By taking the prescribed steps, we can find the final route, which, in this case, is as follows:

**X-16-17-4-14-12-11-2-6-3-9-1-5-8-10-7-13-15-X**

As Figure 1 demonstrates, the first access point of the public postal operator is number 16. It can also be used as the load consolidation location from all operators into one vehicle of appropriate capacity.
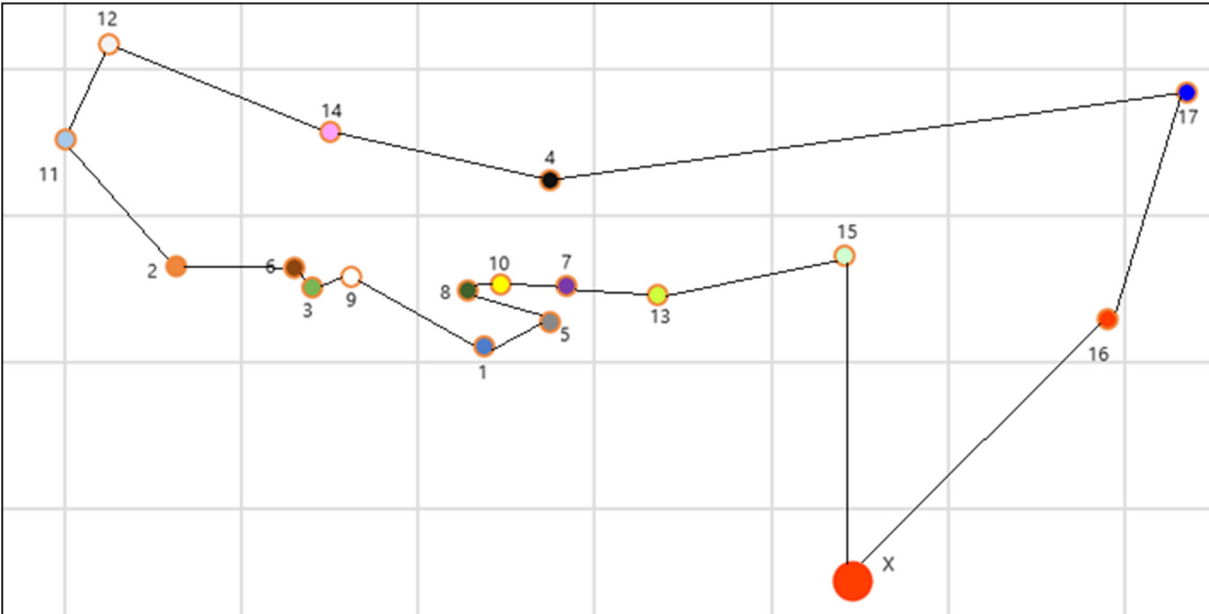


**Figure 1.** Vehicle itinerary in the RU Belgrade Center area calculated
using the Clarke-Wright savings algorithm
**Source:** Own processing

The main issue with this approach is the lack of any limitations. The data calculated points to the shortest route, but real-life conditions should also be considered, i.e. the timeframe for visiting all mini consolidation centers, vehicle capacity, mail load, mail deposit times, and so on.

## 4.2. Heuristic Cleaning Algorithm

The most common limitation used when applying this algorithm is delivery vehicle capacity. Due to the characteristics of existing consumer demands and the nature of the task, the algorithm has been adjusted to use the time intervals for mail delivery to appropriate mini consolidation centers as the limiting factor instead.

The transport of processed mail to mini consolidation centers in order to maximize consumer satisfaction and avoid traffic congestion, should be carried out in the early morning hours. Due to this, in this example, the limiting factor considered is time, i.e. the maximum of 120 minutes that can pass between starting the vehicle at the starting point and reaching the most remote mini consolidation center in the given zone. APM and PUDO delivery also require some time. This time has not been standardized, and it depends on the vicinity of parking spots, package load, other operations that have to be carried out, and additional unpredictable factors. The paper assumes that the average time needed is 10 minutes. In cases where the access point in question is not directly connected to the starting point, its distance has been increased by the time necessary to deposit parcels in previous points:
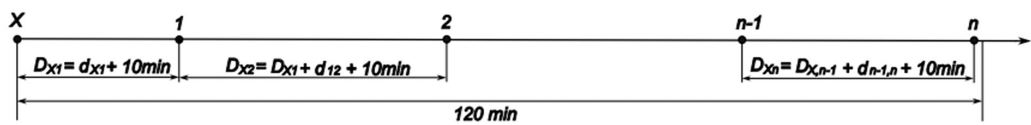


**Figure 2.** Service time interval

**Source:** Own calculations

By applying the cleaning algorithm, along with the above-described adjustments, the authors defined four zones – I, II, III, and IV, each covering a certain number of access points:
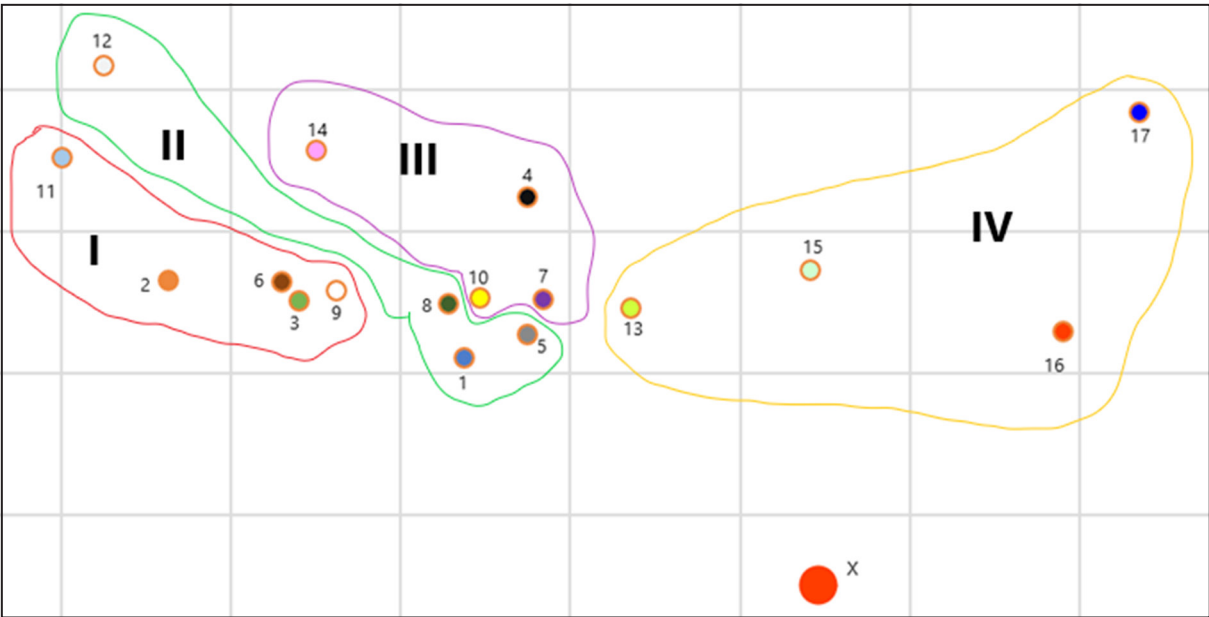


**Figure 3.** Zones defined using the cleaning algorithm

**Source:** Own processing

Each of these zones satisfies the basic criterion – that the delivery vehicle will reach the mini consolidation center and that mail will be deposited within the defined time frame.

The routing problem within each zone now boils down to the traveling salesman problem [8], where the route starts from the base (in this case postal-logistics center). Then, using the nearest insertion algorithm, the authors solved the traveling salesman problem in each zone, as demonstrated by the following figure:
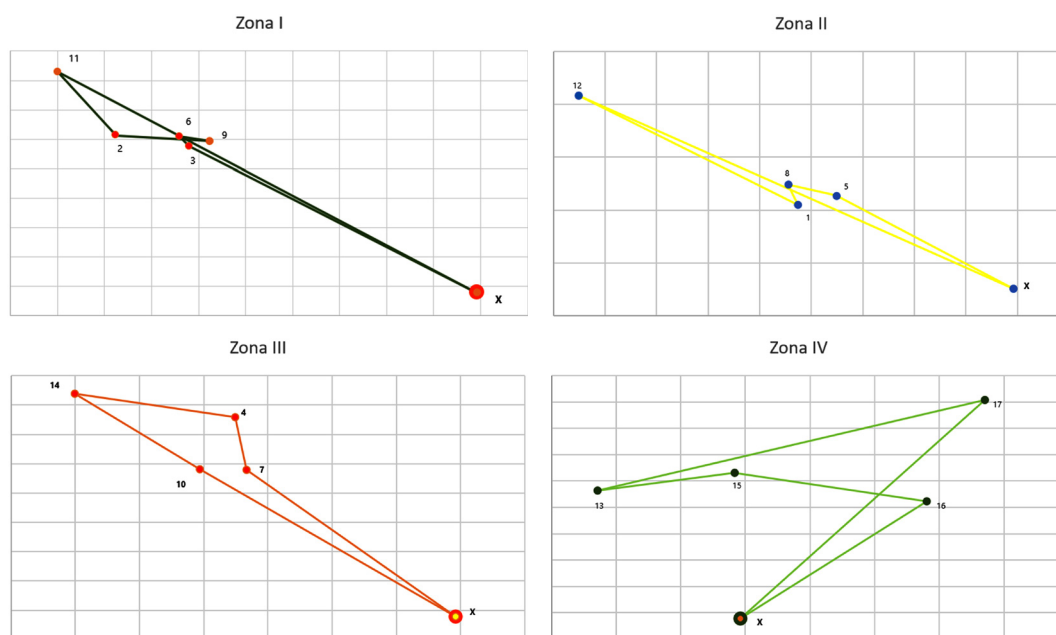


**Figure 4.** Routes are calculated by combining the cleaning algorithm and the nearest insertion algorithm

**Source:** Own processing

## 5. CONCLUSION

The development of the B2C market results in an increase in the impact of last-mile delivery on the quality of life in urban environments. The amount of mail delivered through traditional methods, using road vehicles, must be lowered through the application of alternative delivery methods. One of these methods is the use of mini consolidation centers.

The constant growth of APM and PUDO as OOH delivery methods point this out as a very interesting and important solution. These systems, implemented in many countries, demonstrate that this is the main direction for future delivery system designs in cities and an excellent opportunity to lower the negative environmental effects.

The paper used algorithms based on the principle of a single starting point for vehicles driving to demand nodes. Further research may have the starting point located at any place in an area where there is adequate demand. Of course, in the case of the necessity of multiple starting points, they can be interconnected using the same principle.

As consolidation can include both sharing equipment and sharing the workforce and vehicles, in case there is a need to define a consolidation point for mail flows, an algorithm for calculating "node centers" can be used.

In cases when vehicle capacity must be taken as a limiting factor due to a large mail load, in addition to the time interval (Figure 2), it is necessary to collect data on delivery service demand in the specific area and procure information on the vehicles used (Figure 4). The itinerary in a certain area ends when one of the limiting factors reaches its maximum value.

The decision-making process for starting a vehicle necessitates precise data on all types of requests and clearly defined goals. A request includes both the goods that will be unloaded for delivery, as well as the goods that will be loaded (in case of returns), in order to bring the empty vehicle time intervals to a minimum. These requests bring with them a certain service time, as previously discussed.

Based on the analysis presented above, and with the assumption that delivery post offices are adequately located and that there is a unified need for consolidation, the authors believe that the most important factor impacting this type of solution is the appropriate definition of the itinerary that connects mini consolidation centers used for mail delivery.

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# Research of the Readiness of the Bulgarian State Universities for Transformation Into Entrepreneurial Universities

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**Abstract:** *In the context of the growing challenges and dynamics of modern education, this study focuses on how to measure the readiness of Bulgarian state universities for transformation into entrepreneurial universities. It clarifies the concept of the entrepreneurial type of universities and the factors for their development. The analysis of the Bulgarian State Universities shows that significant efforts are required from the state, universities, and businesses for their transformation into entrepreneurial ones. After evaluating the existing university models, this paper aims to provide an evaluation system to measure the degree of preparedness of the universities for the successful integration of entrepreneurial principles in their educational and management systems.*

## 1. INTRODUCTION

In today's complex, dynamic, and high-tech environment, the development of universities is becoming more and more complex with an emphasis on supporting the development of the regional and national economy through the commercialization of research activities and a wider penetration of entrepreneurial education in them.

## 2. DEVELOPMENT OF THE ENTREPRENEURIAL UNIVERSITIES

The concept of the entrepreneurial university has evolved in response to changing societal needs and economic conditions. The development of the entrepreneurial university can be traced through several key stages (Farsi et al., 2012; Fayolle & Redford, 2014):

- The traditional university (before the 20th century): Historically, universities were primarily focused on traditional academic activities such as teaching and research. Their primary objective is to provide liberal education to students and advance knowledge through research.
- The rise of knowledge transfer (late 20th century): As the economics transformed during this period to the knowledge-based industries of the late 20th century, there was an increased emphasis on the commercialization of academic research. Governments and industry appreciated the potential economic value of university research and technology. This led to the emergence of knowledge transfer offices within universities, which are responsible for facilitating collaboration between academia and business, protecting intellectual property and licensing technologies for the businesses.
- The Triple Helix Model (1980-1990): This model, proposed by Etzkowitz and Leydesdorff in 1990, introduced the concept of the entrepreneurial university as one of the three key players in the innovation process, alongside industry and government. According to this model, the

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entrepreneurial university actively engages in knowledge exchange and collaborates with industry and government agencies to promote innovation and economic development.
- Entrepreneurship training and incubators (1990s – 2000s): During this period there was a growing recognition of the need to develop an entrepreneurial mindset in students and researchers. Entrepreneurship training programs are being established in universities to equip students with the skills and knowledge needed to start and manage a business. In addition, universities are starting to create incubators and accelerators to support student startups and commercialize innovative ideas.
- Creating own startups (2000s to present): With the growth of entrepreneurship programs, technology transfer, and supporting ecosystems, many universities are beginning to create their own startups. These individual activities often originate from research conducted within the university and receive support in the form of funding, mentoring and access to resources from the institution.
- Regional and economic development (2000s to present): In the 21st century, governments and universities increasingly recognize the role of the entrepreneurial university in regional and economic development. Entrepreneurial universities are seen as catalysts for job creation, industry collaboration and fostering hubs of innovation in their local communities.
- Globalization and international cooperation (2000s to present): With the progress of globalization, entrepreneurial universities are adopting the idea of the active development of international cooperation and partnerships. They seek to attract international students, researchers, and teachers to engage in joint research projects and academic exchanges with institutions around the world.
- Social entrepreneurship and impact (2000s to present): In recent years, there has been a growing emphasis on social entrepreneurship and impact within entrepreneurial universities. These institutions promote and support ventures that address social and environmental challenges while striving for financial sustainability.
- Digital transformation and online entrepreneurship (2010s to present): The digital revolution has further transformed the landscape of entrepreneurial universities. Online education and digital entrepreneurship have gained prominence, leading to the emergence of virtual incubators, e-learning platforms, and online entrepreneurial communities.

The entrepreneurial university model continues to evolve as new challenges and opportunities arise in the global landscape of education, research, and innovation. The emphasis on entrepreneurship, innovation and knowledge exchange remains central to the mission of these institutions, and they continue to adapt to meet the needs of a rapidly changing world.

This development is influenced by a combination of conditions and factors that promote an environment conducive to entrepreneurial activities and innovation within an academic environment. Here are some basic conditions and factors that contribute to the development of this type of university (Fayolle & Redford, 2014; Fernandes et al., 2022):
- Supportive political environment: Government policies and regulations play an important role in promoting entrepreneurship in higher education. They promote funding research, technology transfer, intellectual property rights and flexible governance structures to create an environment in which entrepreneurial activities can thrive in universities.
- Leadership and vision: Strong and strategically oriented leadership within the university is critical to fostering an entrepreneurial culture. University leaders who prioritize entrepreneurship and innovation and are willing to take measured risks can drive the transformation to an entrepreneurial university.

- Access to finance: Adequate financial support, including venture capital funds, angel investors and government grants, provides the necessary resources for university-led research and development, incubation of startups and commercialization of innovations.
- Collaboration with industry: Collaboration with industry and the business community leads to knowledge transfer, applied research opportunities and commercialization of university research results. These partnerships help to close the gap between academia and the market.
- Entrepreneurship education and training: Integrating entrepreneurship education and training into university curricula helps students and researchers develop an entrepreneurial mindset and the necessary skills to start and manage their ventures.
- Technology transfer and commercialization: Effective technology transfer offices that facilitate the commercialization of university research results and protect intellectual property rights are essential for the success of entrepreneurial initiatives.
- Support infrastructure: The presence of startup incubators, innovation hubs, co-working spaces and mentoring programs on campus provides a nurturing ecosystem for aspiring entrepreneurs within the university community.
- Interdisciplinary collaboration: Encouraging collaboration between different disciplines and faculties leads to the emergence of innovative ideas and solutions that address real problems and market needs.
- Alumni engagement: Engaging successful alumni who have experience in entrepreneurship can create a valuable network of mentors, advisors and potential investors for current students and researchers.
- Entrepreneurial culture: A culture that embraces risk-taking, creativity and innovation is fundamental to the development of entrepreneurial-type universities. Celebrating entrepreneurial successes and learning from failures can encourage more students and faculty to pursue entrepreneurial endeavors.
- Regional and local ecosystem: The overall entrepreneurial ecosystem in the region or city where the university is located can also influence the emergence of an entrepreneurial university. Access to a supportive local ecosystem of incubators, accelerators, funding sources and a vibrant startup community can be beneficial.

By taking advantage of these conditions and factors, universities can build an entrepreneurial environment that encourages students and faculty to innovate, build startups, and contribute to the economic and social development of their regions.

The entrepreneurial type of university has its advantages, the most important of which are (Peris-Ortiz et al., 2020):
- Innovation and creativity: Entrepreneurial universities foster a culture of innovation and creativity. They often provide resources such as innovation labs, incubators, and environments where students and researchers can experiment and develop their ideas.
- Collaboration with industry: These universities tend to create strong relationships with industries and businesses. This collaboration helps students gain real-world experience through internships, projects, and partnerships, increasing their employability after graduation.
- Entrepreneurial Mindset: By immersing students in an entrepreneurial environment, these universities motivate and build an entrepreneurial mindset, teaching them to identify opportunities, take calculated risks, and creatively solve problems.
- Startup support: Many entrepreneurial universities create special programs to support students and faculty who are interested in starting their own ventures. They can offer

mentoring, funding, legal advice, and networking opportunities to help turn innovative ideas into successful businesses.

- Economic impact: By promoting entrepreneurship and supporting startups, these universities contribute to regional economic development. Successful startups create jobs, attract investment, and drive economic growth in their communities.
- Adaptability to change: An entrepreneurial mindset teaches students to be adaptable to change. In a fast-paced world, this ability to adapt is critical to personal and professional success.
- Problem-solving skills: the focus is on building practical problem-solving skills. Students are encouraged to tackle real-world challenges, helping them develop critical thinking skills and a solution-oriented approach.
- Networking opportunities: These universities often host events, conferences and seminars that facilitate networking with successful entrepreneurs, investors, and industry leaders, providing valuable connections for future career opportunities.
- Commercialization of research: Entrepreneurial universities prioritize the commercialization of research, facilitating the transition of innovative research discoveries into marketable products and services, etc.

It is important to note that the effectiveness of these advantages may vary between different entrepreneurial universities, as their specific approaches, resources and networks may differ. Overall, however, these institutions play a vital role in promoting entrepreneurship and stimulating innovation in the economy.

In Bulgaria, the entrepreneurial type of universities has not yet received its widespread development, due to many objective reasons. An analysis of the Bulgarian state universities allows for the following important conclusions:

- Funding and budget: Bulgarian state universities have faced significant challenges in terms of funding in recent years. Insufficient government funding has led to problems such as outdated equipment, limited research opportunities and inadequate facilities.
- Quality of education: Although Bulgarian public universities offer a range of programs, the quality of education can vary significantly across institutions and fields of study. Some universities have strong faculties and research programs, while others struggle to maintain high international standards.
- Academic staff and scientific research: Retaining and attracting qualified academic staff is a problem for many public universities in Bulgaria. Low salaries and limited research funding have led to a brain drain, with talented faculty seeking opportunities abroad. And this affected the overall research output and innovation within the institutions.
- Access to higher education: Despite the challenges, public universities in Bulgaria remain a popular choice for many students due to their affordability compared to private institutions. However, limited capacity in certain areas and courses may result in high competition and limited access for some students.
- International cooperation: State universities in Bulgaria have made efforts to join international partnerships and collaborations. However, limited resources and language barriers can be obstacles to fully benefiting from such collaboration.
- Language of instruction: The language of instruction in Bulgarian state universities is mostly Bulgarian, which can be an obstacle for foreign students who want to study in the country. While some programs may offer courses in English or other languages, the options are relatively limited.

- Campus infrastructure: The state of campus infrastructure varies across universities. Some institutions have modern and well-maintained facilities, while others may have infrastructure problems due to budget constraints.
- Recognition and accreditation: Bulgarian state universities are recognized and accredited by the Bulgarian Ministry of Education and Science. However, there are sometimes concerns about the recognition of degrees in other countries, especially for certain specialized fields.

In view of these findings, significant efforts are needed on the part of the state, universities, and businesses to implement a process of transformation of the Bulgarian state universities into entrepreneurial ones.

In this aspect, the application of a step-by-step approach is proposed, which considers the specific context and challenges of the environment in Bulgaria:

– **First stage:** Measure the degree of readiness of the Bulgarian state universities for transformation into entrepreneurial-type universities.
– **Second stage:** A transformation process based on a model adapted to Bulgarian conditions and a methodology for its implementation.

The subject of the study is to develop a methodology for the implementation of the first stage.

For this purpose, it is proposed to introduce the measure - degree of readiness of state universities for transformation into entrepreneurial-type universities.

## 3. EVALUATION SYSTEM TO MEASURE THE DEGREE OF READINESS FOR TRANSFORMATION

The degree to which state universities are ready to transform into entrepreneurial universities can vary widely depending on their individual context, resources, and commitment to change. Here are some common grades where public universities can fall in terms of their readiness for transformation:

- **Level One - High Readiness:** The University has fully embraced its role as an entrepreneurial institution. Entrepreneurial values and attitudes are widespread at all levels of the university community. The university has a robust ecosystem that supports startups and fosters a culture of innovation. It has a robust supporting infrastructure, faculty development programs and engaged student organizations with a significant emphasis on entrepreneurship and innovation. The impact of the university's entrepreneurial initiatives is evident in the success of its graduates and contributions to the regional and national economy.
- **Level Two - Moderate Readiness:** A university falling into this category shows a reasonable level of readiness for transformation, but there are some areas that require further development. It has demonstrated leadership commitment and offers some courses and programs related to entrepreneurship. But it needs to strengthen business partnerships, improve the supporting infrastructure, and further develop the entrepreneurial skills of its faculty and staff.
- **Level Three - Partial Readiness:** The university has taken initial steps towards fostering an entrepreneurial ecosystem but is still in the early stages of the transformation process. It may lack full leadership commitment and a clear entrepreneurial culture. While it may have some entrepreneurship courses and student initiatives, its overall readiness needs improvement in several areas.

- **Fourth degree - Limited readiness:** The university is just beginning to realize the importance of fostering an entrepreneurial ecosystem. There are some initiatives, but overall commitment and support from university management is still at an early stage. The university may have started offering a few courses or seminars related to entrepreneurship, but these efforts are limited in scope. It has limited cooperation with business and lacks the necessary infrastructure and resources to support it.
- **Fifth degree - Lack of readiness:** The university is not ready at all for the transformation into an entrepreneurial university. It has no or minimal emphasis on entrepreneurship, lacks supportive programs or courses, and shows little or no interest in fostering an entrepreneurial ecosystem.

A general process and areas that the research should cover to assess the readiness of Bulgarian state universities for entrepreneurial transformation includes the following steps:

1. Objectives of the research: Define clear research objectives, such as understanding the current entrepreneurial culture, identifying strengths and weaknesses, and measuring overall readiness for transformation.
2. Design of the research: Development of a questionnaire with questions that assess different aspects of entrepreneurial readiness. The survey included both closed-ended questions (e.g., multiple choice, Likert scale) and open-ended questions to collect qualitative information.
3. Areas of Assessment: The research covers a variety of areas including but not limited to:
   - Support for entrepreneurial programs and initiatives.
   - Availability and accessibility of entrepreneurial centers or incubators.
   - Commitment of the university management and teachers in the promotion of entrepreneurship.
   - Collaboration with industry and the business community.
   - Availability of funding and resources for entrepreneurial ventures.
   - Curriculum and training programs related to entrepreneurship.
   - Intellectual property policies and technology transfer support.
   - Support for student startups and spinoffs.
4. Sample: An appropriate sample size and method was determined to ensure a representative sample of the universities.
5. Data collection: Survey of management teams, lecturers, and relevant stakeholders in Bulgarian public universities.
6. Data Analysis: Analyze survey responses to identify trends, patterns and predictions related to universities' readiness for entrepreneurial transformation.
7. Interpretation and reporting: Interpreting survey results in the context of research objectives.
8. Follow-up: The results of the study can serve as a basis for the development and application of the model for transformation in Bulgarian state universities.

The specific procedure regarding the assessment of the readiness of the Bulgarian state universities for transformation to an entrepreneurial type includes the assessment of various aspects of the institution's readiness.

The scoring system should consider quantitative data from surveys and qualitative analysis from interviews or open-ended questions.

Steps to create an evaluation system:

- **Step 1. Defining evaluation criteria:** Defining key criteria that indicate readiness for transformation. These may include leadership commitment, entrepreneurial culture, curriculum development, business partnerships, faculty development, student engagement, support systems and resource allocation.
- **Step 2. Determination of weight coefficients:** Determination of weight of each criterion based on the importance in the transformation process. For example, leadership commitment and entrepreneurial culture may have a higher weight than other factors.
- **Step 3. Quantitative data analysis:** Analyzing the quantitative data from the surveys using the Likert scale. Average scores for each criterion and overall readiness are calculated.
- **Step 4. Qualitative data analysis:** Qualitative data from open-ended questions or interviews are analyzed. Strengths and weaknesses, opportunities and threats associated with each criterion are identified.
- **Step 5. Scoring:** Each criterion is scored based on mean Likert scale responses and qualitative analyses. Convert qualitative data into numerical results for consistency. For example, a rating of 1-5 on a Likert scale can be converted to a scale of 20 (1=4, 2=8, 3=12, 4=16, 5=20).
- **Step 6. Calculation of a weighted score:** Multiply the scores of each criterion by the corresponding weight. The weighted scores are summed to calculate a total readiness score.
- **Step 7. Evaluation scale:** An evaluation scale is created based on the overall readiness score. For example:

    90-100: High readiness for transformation
    80-89: Moderate readiness for transformation
    70-79: Partial readiness for transformation
    60-69: Limited readiness for transformation
    Under 60: Lack of readiness for transformation

- **Step 8. Formulation of recommendations:** Based on the evaluation results, to propose specific recommendations for improvement under each criterion. To highlight the areas on which the university can focus to increase its readiness for transformation.
- **Step 9. Action Plan:** Develop a customized action plan that outlines strategies, timeline, and responsible parties to address the identified areas for improvement.
- **Step 10. Continuous evaluation:** Regularly reassess the university's readiness for transformation to monitor progress and determine the effectiveness of initiatives implemented.

It is important to note that the transformation into an entrepreneurial university is an ongoing and evolving process. Therefore, universities may not fit into a strict categorization of a single degree but may exhibit a combination of characteristics from different degrees. Readiness levels may also vary between departments or faculties within the same university.

## 4. CONCLUSION

In this paper the following tasks are achieved:
- clarification of the essence of the entrepreneurial type of universities,
- analysis of the Bulgarian state universities was carried out regarding the degree of their readiness to transition to entrepreneurial universities,
- system has been proposed for evaluating the degree of readiness of Bulgarian universities for transformation into entrepreneurial-type universities,
- algorithm of the evaluation system was developed.

Assessing readiness for transformation in entrepreneurial universities will help universities understand their current position, set goals, and implement targeted measures for successful transformation.

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# Investigating the Relation of Philological Sciences Teachers with AI in Education

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**Abstract:** *The paper aims to present an image as accurate as possible of how teaching staff perceive artificial intelligence in the current educational context due to the profound effects that AI already has and will have on civilisation, both culturally and economically. The data analysis obtained after applying a questionnaire to philological sciences teachers in a medium-sized university in an Eastern European country highlighted that a relatively homogeneous teaching body has quite a heterogeneous approach to the AI phenomenon. As a result, there are many different ways that AI is affecting education, and they can be discussed on many different levels, including the relationships between the many stakeholders, classroom instruction, scientific research, and the personal training of educators. The benefits and risks associated with implementing AI in education are clear, and it is imperative that appropriate training programs and ethical guidelines be put in place before AI is used in classrooms.*

## 1.  INTRODUCTION

Artificial intelligence (AI) has a significant and global influence on many facets of daily life, the economy, and society. Thus, AI technologies have affected the labor market by automating repetitive and routine jobs in a variety of industries (Arntz et al., 2016; Brynjolfsson & McAfee, 2014; Ford, 2015;). AI boosts productivity, expedites procedures, and encourages creativity, all of which lead to economic progress. Companies that use AI technology frequently obtain a competitive advantage, which boosts economic output (Brynjolfsson & McAfee, 2014; Perisic, 2018; Varian, 2019). Through uses in drug development, personalized medicine, medical imaging analysis, and predictive analytics, artificial intelligence is revolutionizing the healthcare industry. AI technologies help in more precise disease diagnosis, enhanced treatment strategies, and improved healthcare administration (Darcy et al., 2016; Topol, 2019;). In education, AI is used to automate administrative duties, provide adaptive tutoring, and personalize instruction. It could enhance accessibility, learning results, and the educational process as a whole (Organisation for Economic Co-operation and Development, 2021; Russell & Norvig, 2010). Chatbots, virtual assistants, and language translation services are made possible by AI-powered language processing technologies. These apps make it easier to communicate and access information across platforms and languages (Clark & Mayer, 2016; Matsumoto-Royo & Ramirez-Montoya, 2021). Yet, as AI becomes more prevalent, ethical questions arise regarding algorithmic bias, privacy, and the potential loss of jobs (Duggan, 2020; High-Level Expert Group on Artificial Intelligence, 2019; Ramos, 2022; Selwyn, 2019). It is imperative that these ethical issues be addressed in order to guarantee ethical and just AI development and application.

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## 1.1. Literature Review on AI Teaching Foreign Languages

Artificial intelligence as a tool for foreign language instruction has garnered more attention and development in recent years. The early systems for Computer-Assisted Language Learning (CALL) shaped the development of AI in language training throughout history. Starting with fundamental works (Warschauer & Healey, 1998) investigating the early use of technology in language instruction and its development into the age of intelligent and adaptable systems, the examination goes into detail. Intelligent tutoring systems have been central to the discussion for AI-assisted language learning. Research explores how well ITS meets the needs of individual learners, customizes instruction, and maximizes language acquisition results (Graesser et al., 2005; Johnson & Lester, 2015). Personalized language learning now offers more options due to the rise of AI-powered adaptive learning tools. Literature focuses on these platforms' workings, demonstrating how they may evaluate student data, provide personalized content, and modify teaching methods to improve language competency (Baker et al., 2010). Furthermore, developments in Natural Language Processing have prompted the creation of AI-powered language apps, which have prompted research into the use of NLP technology in language instruction with a focus on their impact on grammar correction, language production, and overall linguistic competence (Lee et al., 2021).

Research also focuses on investigating how the application of conversational bots powered by AI enhances oral skills. Studies conducted evaluate the efficiency of chatbots and virtual conversational partners in promoting spoken language proficiency and real-time language practice (Liu et al., 2023) and also how game-based AI systems can support foreign language learners' motivation, engagement, and language acquisition (Chen et al., 2018; Smith, 2014;). Finally, it is important to understand how teachers feel about integrating AI, the attitudes, difficulties, and training requirements of teachers with regard to using AI tools in foreign language classrooms (Alharbi, 2023; Gayed et al., 2022; Godwin-Jones, 2021). On the same note, it is worth mentioning the ethical issues regarding the importance of ethical AI practices and the continuous investigation of the complex interplay between pedagogy and technology in foreign language instruction. It is one of the considerations prompting the authors of the present paper to carry out research in these directions.

In Romania, there has been an increasing surge in academic interest over recent years concerning the investigation of artificial intelligence. Research encompasses various areas within the sphere of education and includes a rich body of literature focusing on changes in the way economic education is delivered through digital platforms (Mihai et al., 2024). In a different path, the issues facing competence-oriented education in the context of developing artificial intelligence systems are identified, along with the competencies required to use artificial intelligence tools (Popa et al., 2024; Zaharia, 2024). Additionally, there is research on the reception of new technologies by economics students (Duffett et al., 2024; Gradinaru et al., 2024). Studies indicate a positive impact and a desire to use AI in the educational process among students, claiming for an urgent and significant revision of teacher training programs through the development of educational policies that enhance the confidence of future educators in the ability to use AI (Sămărescu et al., 2024). However, there are no studies dedicated to a unitary teaching body, as are the teachers who teach various philological subjects in the university environment.

## 2. METHODOLOGY

This study examines how philological science instructors view artificial intelligence (AI) in the classroom, with an emphasis on scientific research, teaching, and student-teacher relationships. A

standardized questionnaire with both closed-ended and Likert scale questions was created by the researchers. The questions cover a wide range of subjects, including knowledge of artificial intelligence, how it affects traditional teaching techniques, how beneficial it is to use AI in education, how it affects educators' scientific research activities, ethical concerns, and regulatory organizations. For the results to be indicative of the larger population, the researchers made sure their sample was both diverse and well-rounded. Thus, the target group surveyed is made up of the professors teaching philological sciences (both to philological students and non-philological students) at the University of Oradea, Romania. The researchers have chosen this specific group of respondents as language, literature, and culture are all studied in the philological sciences. Given the significance of language and communication in the learning process, this interdisciplinary background can offer a distinctive viewpoint on the application of AI in education. Also, AI in education frequently involves human-machine communication. Educators with a background in philological sciences might possess a profound comprehension of efficient communication, (which is, by the way, at a very high level, an essential skill for developing artificial intelligence systems that promote learning), yet they do not have training in the field of information technologies. This can influence the way they relate to new technologies associated with artificial intelligence, compared to teachers with technical specializations, who are much more familiar with technological innovation (Doroudi, 2022; Edwards et al., 2018).

Another reason behind this choice of target group is the fact that texts and information are critically analyzed in the philological sciences. Evaluating the ethical, social, and cultural ramifications of using AI in educational contexts can be made easier by applying this analytical capacity to AI in education. The survey was sent out by email. The anonymous questionnaire responses from the participants yielded quantitative information about their attitudes, actions, and views regarding artificial intelligence. Out of a total of 47 professors teaching philological sciences (native and foreign languages) at the University of Oradea, 40 responded. The authors presume that the participation of the non-respondents may have been discouraged by platform-related obstacles, such as compatibility problems. After collecting 85% of the replies from the teachers who completed the survey, the researchers used statistical techniques to evaluate the data in early 2024. The results of the investigation showed trends, correlations, and patterns in the attitudes and perceptions of the philological professors toward artificial intelligence.

A lack of thorough insights and comprehension of the current landscape may arise from the lack of a survey investigating the function of AI in philological education, that is, in a field that is not connected by excellence to the innovations of digital technologies. Therefore, to properly understand the benefits and limitations of artificial intelligence in education, the authors of this research paper designed a survey in order to gather insightful information from those directly engaged in the educational ecosystem. When designing the survey, the authors carefully considered that the questions ought to be designed to elicit pertinent data from the many parties participating in the education industry: the familiarity with AI technologies in education, whether respondents received training on integrating AI tools into their teaching practices, how teachers perceive the impact of AI on student engagement and learning outcomes, the respondents' level of awareness of the role of AI in shaping education, and the existence of policies governing the ethical use of AI in education.

## 3. RESULTS AND DISCUSSION

Teachers' attitudes toward the use of AI in education might vary depending on many factors, including their general educational philosophy, knowledge of AI applications, and technological

experience. Some educators are excited to incorporate AI into their lessons, viewing AI as a tool that may improve individualized instruction, deliver insightful data, and present creative approaches to get students involved in the learning process. Technology-savvy educators can see artificial intelligence as an exciting chance to use cutting-edge resources and platforms. They might be aware of how AI can improve learning environments by generating more dynamic and engaging learning environments, automating some tasks, and offering real-time feedback. At the same time, many educators are cautiously enthusiastic. Though they may raise concerns about privacy, data security, and the need for appropriate training to successfully incorporate AI into their teaching practices, they may acknowledge the potential benefits. Also, some educators' perceptions of AI in education may be influenced by worries about job displacement, particularly in areas like grading and assessment. Moreover, some teachers stress the value of interpersonal relationships and emotional intelligence in the classroom which might be wary of relying too much on artificial intelligence. Some would contend that AI cannot completely replace the human touch and tailored instruction because they are essential components. Then, there are concerns over equitable access to AI technologies voiced by educators. They might be concerned that unequal access to AI-powered resources could cause some students to fall behind, therefore escalating already-existing gaps in education. Therefore, there are instructors frequently stressing how crucial it is to take ethics into account while using AI in the classroom and supporting open and honest policies, prudent use of student data, and an emphasis on the welfare of students.

The first question of the survey sought information about the years of experience in teaching or related roles and revealed that 42.5% of respondents have been active for more than 25 years in the field of education, 35% between 20-25 years, 17.5% between 10-15 years, while 5% between 15-20 years. Therefore, on the one hand, it is an audience with important didactic and scientific expertise, which has experienced the changes generated by the introduction of new technologies in education (ICTs, Moodle platforms, distance learning) and which can be receptive and reactive to a new wave of transformations in education. On the other hand, the fact that over three-quarters of the respondents have more than 20 years of experience in education could indicate restraint and a lack of flexibility, if not resistance to changes that require maximum openness, effort, and dramatic reconsideration of the way to approach the less technical or technological disciplines in the future.

Regarding the degree of familiarity with the concept of artificial intelligence in education, 22.5% is indicative of the answers to the question, where 70% of the people are somewhat familiar and 7.5% are not at all familiar with this concept (see Figure 1). The age of the respondents might be a factor, particularly in light of how quickly technology is developing. Not everyone has the time or desire to explore the complexities of artificial intelligence, as it is a complicated field.
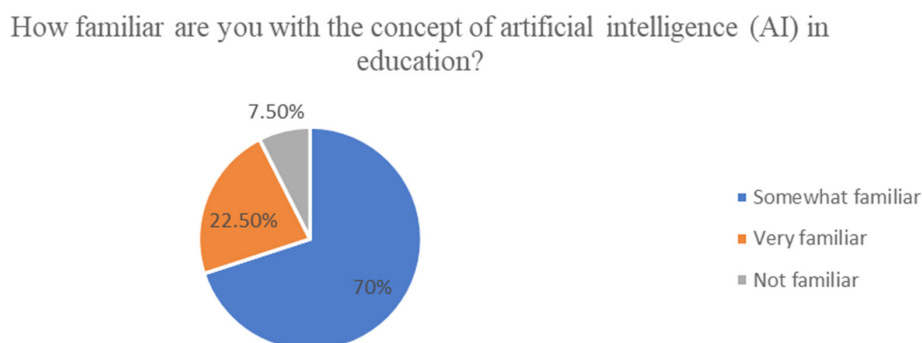


**Figure 1.** The degree of familiarity with the concept of AI
**Source:** Own research

It should come as no surprise that a lot of educators get their main information about artificial intelligence (AI) from the internet (70%), media (30%) and even from their own students (12.5%). The internet is a vast resource that provides teachers with access to a wealth of AI knowledge. They get access to forums and groups devoted to AI education, as well as articles, videos, online courses, and more. Media outlets frequently cover AI-related subjects, including its uses, social effects, and scientific developments. Also, teachers may find themselves learning about artificial intelligence from their pupils due to the quick rise in student interest in the subject. At the same time, it happens that some teachers have family members in the tech or AI industries. Talking with these family members can inevitably lead to talking about artificial intelligence, its uses, and how it affects schooling. Family members with expertise in AI could provide books, papers, or other resources to the teacher to assist them learn more about the subject. In a similar vein, educators may know people who work in AI or are interested in the field. Talking casually with friends might introduce them to new concepts, fashions, and advancements in artificial intelligence.

When asked whether the respondents have received any form of training on the use of artificial intelligence in education, despite the increasing prevalence of AI in various industries, 65% answered that they have not received formal training in AI. Less than half (40%) of respondents say they have educated themselves, using free webinars found on the internet (see Figure 2 below). Five respondents out of the total of 40 have received training provided by other agencies and institutions, while only two teachers have participated in specific training provided by their employing university. Although this is a singular case, one subject states that they learned about AI at a conference on this topic, where they were presented with specific tools and applications.

Yet, despite the notion that there are not as many courses designed expressly for the education industry as there are for certain other businesses, the importance of AI in education is becoming more widely acknowledged. Courses on using AI in teaching methods are starting to be offered by a lot of organizations and online resources as illustrated in the survey, as results from the fact that 35% of the respondents indicated self-training, like free webinars, courses provided by the respondent's university, courses provided by other institutions, conferences, or agencies (See Figure 2).
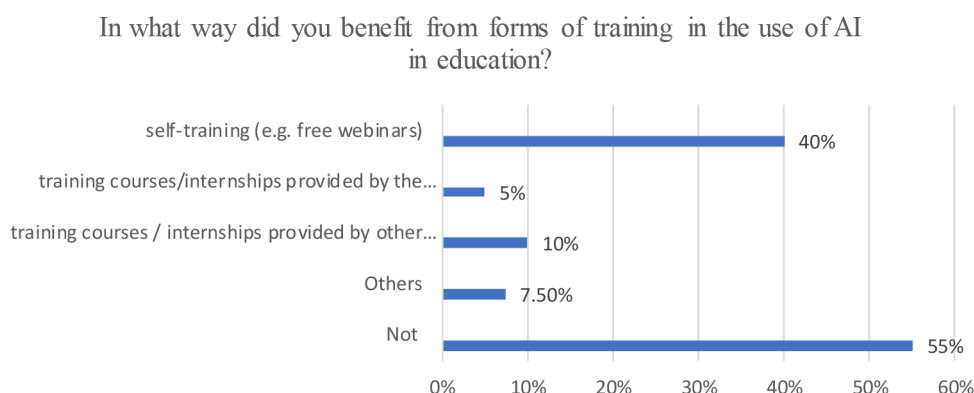


**Figure 2.** Forms of training in the use of AI in education

**Source:** Own research

AI has a diverse potential impact on conventional education approaches. Although AI has the potential to improve and revolutionize education (45% of the respondents have a positive attitude), there are obstacles and things to take into account (7.5% are worried about the effects). There is a large pool of respondents who have not yet formed a clear opinion about the effect of AI on the teaching activity, as it is traditionally understood: 47.5% are neutral about this aspect,

which means that they do not have enough given to declare supporters or assumed opponents of the introduction of AI in school. All the investigated teachers have, to the same extent, didactic and scientific attributions.

Regarding the usefulness of AI in the educational process (Figure 3), most of the respondents acknowledged its utility in both scientific research activity and teaching activity (60%) while only 5% reject AI as a useful instrument in these fields. In second place in teachers' assessments regarding the usefulness of AI / in a hierarchy of the usefulness of AI in the teaching process is the field of teaching (35% of options), followed by scientific research activity (less than 20% of the total options expressed). These percentages show that there are still significant areas to explore, both in terms of didactic and scientific aspects. It is not uncommon that many instructors routinely voice questions or worries regarding the implementation of AI in the classroom. These attitudes can be attributed to a variety of factors, such as a lack of experience with AI technology, worries about job displacement, or the perception that AI is limited in its ability to comprehend the complexity of human relationships.

The analysis regarding the effectiveness of scientific research activities among professors (Figure 3) reveals several important aspects. Out of 40 respondents, 30 consider key research stages such as data collection and analysis, implementation of more relevant data analysis and interpretation tools, and especially access to databases as strengths in utilizing AI. A significant aspect is the interest of teachers in facilitating interdisciplinary collaboration with the help of AI as approximately half of the respondents do not see AI as a determining factor for closer collaboration between disciplines. This perspective may suggest that, despite the benefits that AI brings to research, there are still challenges or reservations in implementing effective interdisciplinary collaboration. Regarding translations and data interpretation, responses are more neutral, considering that the quality of products obtained with the help of AI may vary and might require increased attention.
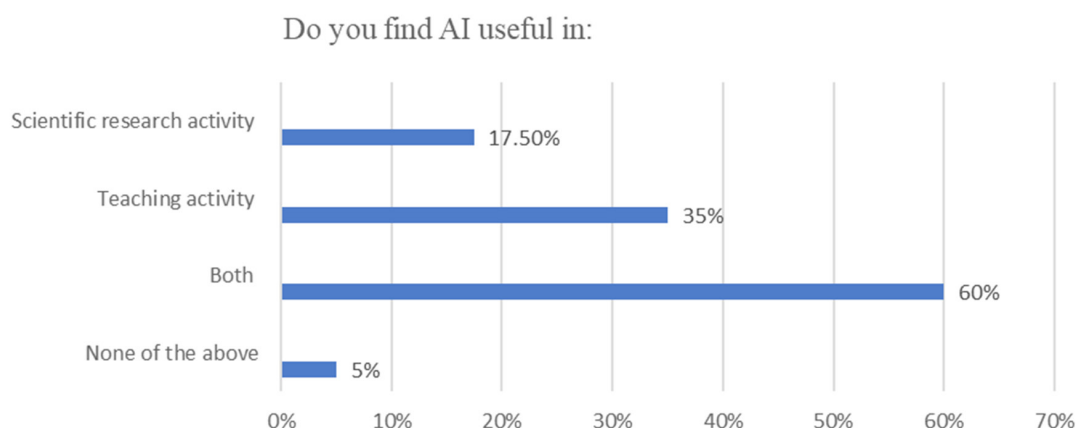


**Figure 3.** The usefulness of AI in the educational process
**Source:** Own research

Regarding the question "How would you rate your institution's efforts to make teachers aware of AI applications in education?" the responses disclose a significant perception among respondents, all of whom are linked with the same institution. More than half of the respondents, or 55%, express unhappiness with the institution's efforts to raise teacher understanding of AI uses in education. This result should determine a critical examination of the strategies employed by the University of Oradea to familiarize its teaching staff with the implications and integration of AI in the educational system.

The responses also provide miscellaneous insights into the perceptions of the respondents, indicating varying levels of concern regarding the ethical implications of integrating AI into educational settings (as shown in Figure 4). A combined 45% of respondents, with 27.5% considering it will have a great impact and 17.5% perceiving a significant impact, express a deep understanding of the ethical challenges associated with AI in education. This suggests a noteworthy proportion of the sample acknowledges the potentially profound effects on ethical considerations within the educational context. The 40% believe that there will be some extent of impact, reflecting a more moderate approach to the ethical challenges posed by AI in education. Contrastingly, less than 10% of respondents believe that AI will have very little or no impact on ethical considerations in education suggesting a more optimistic or less alarmed view.

There seems to be a correlation between the responses to the question inquiring whether there are ethical problems involved with employing AI in education (Figure 4) and the hazards associated with the use of AI in education. The majority of respondents who voiced worries about ethical difficulties related to AI in education also appear to perceive a higher level of threat associated with its introduction. Namely, among those who consider ethical challenges significant (45% of respondents), a notable portion rated the risk of AI introduction in education as either extremely threatening (7.5%) or threatening (17.5%). On the other hand, a smaller minority of respondents (10%) who do not find ethical concerns alarming at all are also likely to consider the adoption of AI in education as not threatening. This consistency in viewpoints indicates a segment of respondents who view both ethical implications and overall risk more optimistically. A relevant observation is that 50% of respondents expressed no opinion on the risk associated with AI introduction in education. This indecision may be attributed to a lack of familiarity with the potential risks of the implications of AI in the educational domain.
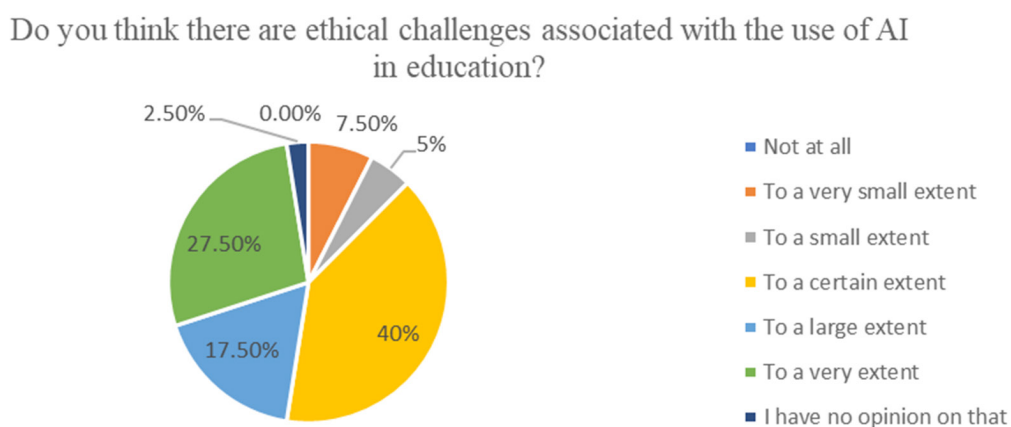


**Figure 4.** Ethical challenges associated with the use of AI in education
**Source:** Own research

In examining potential threats or dangers associated with the use of AI in education, the analysis suggests a balanced perspective. Concerns related to the lack of teacher-students, as well as student-student interaction, appear to be evenly distributed, with the majority of responses pointing towards a neutral attitude. Surprisingly, the potential loss of employment does not significantly worry/distress/concern a great number of respondents, as the majority of answers fall within the range from least threatening to not threatening at all. On the other hand, ethical and moral considerations have gathered the most positive responses. Respondents exhibit a significant knowledge and concern for ethical issues, indicating the realization of the need to address ethical implications in the integration of AI in education.

There is a correlation between the question regarding the methods that can lessen the threats posed by the introduction of AI in education and the entities that should control the use of AI in education. The former covers the hierarchical prioritizing of steps aimed at limiting the possible dangers posed by the introduction of AI, while the latter explores the responsibility for regulating the use of AI in education. Both strict control of the ethical use of AI in the educational sphere and the facilitation of internships/training programs for teachers and students regarding the ethical use of AI received the highest scores from the majority of respondents. The aspects related to the regulation of AI usage in education are further approached, where 85% of respondents express the opinion that the Ministry of Education should, in the first place, address this aspect, followed by the university. This alignment highlights a fluid perspective among respondents regarding the importance of ethical regulation and the governing role of educational institutions in managing AI integration within the educational domain. The varied responses underscore the importance of considering ethical dimensions in the adoption of AI technologies in education. Educational institutions and policymakers need to address and mitigate these concerns through transparent guidelines, ethical frameworks, and ongoing dialogue with stakeholders. This analysis provides a foundation for further exploration and development of strategies to ensure responsible and ethically sound deployment of AI in the educational domain. The dissatisfaction regarding the application of AI-powered platforms in education expressed by more than half of the respondents suggests potential gaps in the actions undertaken by the institution. Factors contributing to this perception could include syncope in training programs as the institution might not be aware of the importance of AI for the present and future of scientific and teaching activity, limited access to relevant resources, or a lack of real-life experiences with AI applications. Adjustments to the current situation would not only address the obvious concerns but could also prepare the way for a more informed and updated teaching staff within the university.

## 4.   FUTURE RESEARCH DIRECTIONS

This article deals mainly with the teacher's perception of AI used in education. However, teachers are an extremely heterogeneous professional category, with diverse educational backgrounds and scientific and didactic peculiarities. Considering the rapid pace with which AI penetrates all fields, clearly exceeding the sphere of exact sciences, economic sciences or engineering, it is critical to understand the individual needs of each profession and to find tailored solutions for incorporating AI into the educational process. This paper, which addresses the problem of the perception of teachers from the humanities field on the relationship between AI and education, can represent a point of inspiration for the future investigation of the perception of teachers from other fields: creative arts (theatre, cinematography and media, music, visual arts, decorative arts and design ), physical education and sports, architecture and urban planning, natural sciences, theology, legal sciences, social and political sciences, agricultural and forestry sciences, etc. Competent AI training for these teachers will undoubtedly result in an efficient integration of AI into the educational process and an appropriate preparation of students for the labour market.

Nevertheless, given that students are an important source of information while also being the other party involved in the educational process, the authors believe that this connection, in terms of AI, is worth further investigation in order to better meet the interests and educational needs of both teachers and students. Students can work on AI projects, discuss AI-related subjects in class, or demonstrate their knowledge with assignments or presentations.

## 4.    CONCLUSION

One year after the appearance of ChatGPT, teachers learn about AI mainly from their sources. Often students and children in the family know more as it has been proved by the prevalent answers to the survey. There is still no supported process from the employing institution or the Ministry, to train the teaching staff or to provide courses, as there were training sessions for IT technologies (e.g. the Moodle platform for distance learning). The teachers' dissatisfaction signals a need for more effective communication channels between the institution and its teaching staff regarding advancements, benefits, and potential challenges associated with AI in education.

The future can no longer be conceived without AI, which will penetrate deeper and deeper into all fields. Philology professors in a university prepare thousands of students to become tomorrow's specialists in fields such as language sciences, education, communication in the mother tongue and foreign languages, literature, librarianship, human resources, etc. How these students will integrate into the field of work will depend on the skills acquired during their studies. However, how teachers relate to AI impacts the degree to which they will integrate AI into the educational process. A didactic/educational path that does not reject AI will familiarize students with the technologies of the future. Moreover, it is not enough for the teacher to use AI facilities to make his course more competitive, more attractive and more dynamic. They must take a much more important step: teach students how to use AI capabilities in future professions. This is more complicated and requires dedicated training programs.

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# The Impact of Artificial Intelligence on Student Performance: A Comprehensive Review

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**Abstract:** *The present research focuses on how students' performance may be enhanced by artificial intelligence (AI) in a variety of educational settings. It examines, via an in-depth examination of a range of available data, how AI technologies and methodologies have been applied to improve academic achievement, student engagement, and learning outcomes. The paper discusses the advantages and challenges of integrating AI into teaching strategies and provides recommendations for more research and implementation strategies.*

## 1. INTRODUCTION

Artificial intelligence's rapid rise to notoriety as a revolutionary force has changed many industries and our personal, professional, and educational environments. Its influence is so great that it is creating new standards in a variety of sectors. Artificial Intelligence has the potential to greatly improve student success and the quality of learning, especially in the field of education. As researchers look at how AI technologies can transform teaching methods, it is becoming more and more crucial for educators and policymakers to comprehend the subtleties of AI's impact on student results.

This study explores the complex link that exists between AI applications and student performance in learning environments by providing a thorough review of previous academic studies. New developments in artificial intelligence have made it possible to use creative teaching practices that improve the learning process by offering individualized instruction, real-time feedback, and customized information. With the advancement of AI technology, learning can now be more targeted and efficient, precisely meeting the demands of each learner. By citing the research conducted by Baker and Siemens (2014), we can see the critical role that learning analytics and educational data mining have had in influencing these developments. Their research establishes a new benchmark for educational practices by highlighting the importance of AI in rethinking the delivery and reception of educational information. Examples of these technical developments include deep learning systems, natural language processing, and machine learning. Numerous AI-powered solutions have been implemented to improve student engagement and learning trajectories. These consist of chatbots created specifically for educational purposes, intelligent systems for tutoring, immersive virtual reality settings, and platforms that adjust to the unique learning preferences and speed of

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each user. These resources not only improve instruction but also give it a more customized feel, increasing engagement and adaptability to the requirements of students.

AI can be incorporated into teaching methodologies to cope with frequent obstacles in the educational field, like the diversity of students' learning preferences and abilities, the limitations of personalized instruction, and the need for quick and constructive feedback. Teachers may design environments for learning that are tailored to the individual requirements and interests of each student by leveraging artificial intelligence. Using this approach might enhance comprehension, increase retention, and raise academic performance. However, there are many challenges associated with integrating AI in educational settings, such as moral conundrums, societal ramifications, and logistical challenges that need to be properly addressed. Concerns like safeguarding student privacy regarding their data, tackling biases in algorithms, closing the digital divide, and outlining the roles of teachers in AI-enhanced environments highlight how critical it is to conduct thorough research and make deliberate decisions when incorporating artificial intelligence into educational frameworks. This thorough analysis aims to examine the state of the research on AI's effect on student performance by looking at theoretical models, empirical data, and practical consequences.

This research aims to enhance comprehension of the potential benefits and obstacles linked to the use of artificial intelligence in educational environments. To do this, data from a variety of research is synthesized, and knowledge gaps are identified. This leads to a more nuanced understanding of how artificial intelligence may be effectively used in education. The paper aims to clarify how artificial intelligence may improve student performance in general, extend learning opportunities, and radically alter teaching methods. The intention is to provide insights into how AI may be a key factor in improving educational standards and influencing the development of new teaching approaches.

## 2. LITERATURE REVIEW

This section presents an examination of research studies on the effect of artificial intelligence on academic performance. In an effort to provide a wide-ranging viewpoint on the topic, the study covers a wide range of fields, including computer science, psychology, education, and human-computer interaction.

### 2.1. AI-Driven Technologies in Education

Artificial intelligence, language analysis, and data analytics have advanced recently, which has greatly accelerated the deployment of AI-centric technology in educational environments. More individualized and effective educational experiences are becoming possible because of these technologies that are changing the face of teaching and learning. The research of Lane and Van-Lehn (2005), supports this trend by demonstrating the efficacy of teaching novices sophisticated programming concepts using natural language coaching. Intelligent tutoring systems (ITS), adaptive learning platforms, educational chatbots, and virtual reality simulations are some of the AI-enhanced educational technologies that have the potential to significantly improve students' learning experiences. These artificial intelligence-driven solutions personalize learning experiences and material to each student's requirements, creating a more effective and engaging learning environment. The work of Baker and Siemens (2014), who explore the relevance of educational data mining and learning analytics in forming these cutting-edge educational technologies, lends credence to this approach.

Empirical evidence indicates that AI-powered systems may provide personalized learning paths tailored to the individual requirements and preferences of every learner. According to Dede (2010), this customization in education highlights the revolutionary potential of AI in modifying course material to better meet the needs and learning styles of each student. As an example, adaptive educational frameworks allow for the real-time modification of course frequency and content by using advanced algorithms to examine student performance data. Through more effective customization of educational experiences to match the requirements of each student, this dynamic method seeks to maximize learning results. The creation of these adaptive systems is based on a fundamental knowledge of how cognitive structures may be represented, which is provided by Anderson's (1983) work. This highlights the vital role that cognitive science plays in improving educational technology. Similar to this, cognitive models are used by intelligent tutoring systems to offer students personalized feedback and support, creating a learning environment that helps pupils grasp the material. This kind of individualized education is intended to increase the efficacy of learning by adjusting to the speed and comprehension of each student.

## 2.2. Impact of AI on Student Learning Outcomes

Research has indicated that artificial intelligence-enhanced tools can boost student motivation, retention rates, and understanding. Making the learning experience more dynamic and individualized helps achieve this. Research on the cognitive theory of multimedia learning by Mayer (2014) provides support for the effectiveness of these AI-enhanced teaching methods. This study clarifies how learners' cognitive processes may be supported by the thoughtful integration of multimedia components into learning settings, which can greatly enhance comprehension and retention. In 2011, for example, a thorough meta-analysis conducted by VanLehn found that students receiving tutoring via intelligent tutoring systems made greater learning progress than students receiving instruction in traditional classroom settings. This study emphasizes the importance of AI-driven tutoring on academic performance and the value of utilizing technology to support more in-depth and individualized learning. Similarly, Deterding et al. (2011) study showed that gamified learning environments including AI-driven feedback greatly increased student motivation and engagement. This study investigates how artificial intelligence may be dynamically integrated into game-based learning environments to improve the educational experience and make learning more student-centered and engaging.

## 2.3. Challenges and Considerations

While artificial intelligence provides many critical obstacles that must be overcome, it also throws up a wealth of fascinating prospects within the educational sector. Ensuring fair access to AI technology and its moral use are crucial among them. Protecting data privacy, reducing algorithmic bias, closing the digital gap, and providing educators with sufficient training for AI integration are just a few of the crucial concerns that need to be given serious thought. In their paper, Means and Neisler (2021), address these issues by stressing the difficult terrain of using AI in education and the vital actions required to harness its potential responsibly. Furthermore, studies show that a wide range of criteria, including the caliber of instructional design, the degree of instructor assistance offered, the diversity of student characteristics, and different contextual components, all affect how successful AI interventions are in the classroom. In order to assess the degree to which AI-driven educational technologies might enhance learning outcomes, several factors are critical (Means & Neisler, 2021). Understanding these tiny variances is essential to maximizing the potential of AI to create equitable learning opportunities and increase student performance.

This review essentially synthesizes the growing body of research on the impact of AI on student accomplishment in educational contexts. While AI technologies have great potential to improve educational outcomes and personalize learning, their successful use necessitates careful consideration of ethical, sociological, and practical issues. This analysis establishes the foundation for further research into the complex interaction between AI applications and the learning process by combining key findings from several studies.

## 3. THEORETICAL FRAMEWORK

The empirical foundation for investigating the relationship between academic achievement and artificial intelligence is established in this section. It integrates ideas from cognitive psychology, educational philosophy, and technology-enhanced learning to present a theoretical framework for understanding the principles and mechanisms through which AI affects student learning outcomes.

### 3.1. Cognitive Load Theory

According to the Cognitive Load Theory, efficient instruction aims to reduce needless cognitive strain while making the most use of available cognitive resources. According to this idea, learning entails carefully managing these resources to promote comprehension, as Sweller's (2010) study on the interplay between various forms of cognitive load explains in particular. Intelligent tutoring programs and adaptive learning platforms are two examples of AI-powered solutions that provide individualized learning experiences based on the unique qualities and skills of each learner, helping to reduce cognitive load. VanLehn's (2011) study provides evidence for this strategy by comparing the effectiveness of human tutoring with different tutoring systems and demonstrating how AI interventions may maximize learning by targeting individual cognitive demands. Artificial intelligence systems can optimize the allocation of cognitive resources and enhance the efficacy of learning by making instantaneous modifications to the instructional material, pace, and feedback.

### 3.2. Constructivist Learning Theory

Constructivist learning theory places a strong emphasis on the dynamic creation of knowledge via social interactions and in-depth task participation. This instructional strategy is supported by AI technologies, which offer chances for experimentation, discovery, and customized guidance and feedback, making learning richer and more engaging (Jonassen, 1991). For instance, students may interact with and modify digital settings and objects by using virtual reality simulations, which improves hands-on learning opportunities. Additionally, conversing with AI-powered chatbots and agents can help students develop their analytical and critical thinking abilities by pushing them to work together to solve issues and think analytically (Rus et al., 2023).

### 3.3. Socio-cultural Perspective

The Socio-Cultural Perspective emphasizes how social and cultural variables affect the objectives and methods of learning. AI systems may improve the development of learning communities, promote meaningful social interactions, and assist the cooperative creation of knowledge when integrated into various sociocultural contexts, enhancing the educational environment (Lave & Wenger, 1991). Through the use of intelligent recommendation systems, online

collaboration platforms with AI enhancements may facilitate group learning and information sharing by connecting students with their peers and essential resources. AI-powered analytics also provide insightful data on participation patterns and group dynamics, which helps teachers better adjust their lesson plans to each student's unique requirements as well as the needs of the class (Ferguson, 2012).

## 3.4. Technological Determinism vs. Social Shaping

Technical determinism and social shaping are two ideas that are frequently brought up in theoretical discussions on how technology affects society and education. Technical determinism asserts that technology is the primary force behind social evolution, whereas social shaping theories propose a mutually reinforcing connection whereby technology and societal forces are shaped via intricate interactions (Bijker et al., 2012). AI adoption in education is the result of a confluence of social factors and deterministic forces, molded by institutional structures, cultural norms, and governmental decisions. Understanding these complex connections is crucial to conducting a complete assessment of AI's effects on educational equality and student success (Selwyn, 2019).

## 4. METHODOLOGY

This section outlines the methodology employed to investigate the effects of artificial intelligence on academic attainment, providing a clear rationale for the chosen research design and detailing the procedural steps followed. The study adopts a predominantly qualitative approach, justified by the need to capture the nuanced and complex ways AI impacts student learning outcomes, as supported by the literature. The qualitative focus allows for an in-depth exploration of subjective experiences while ensuring that findings are grounded in empirical evidence.

To ensure a comprehensive and rigorous examination, the research framework included a systematic literature review that targeted peer-reviewed academic sources, including books, papers, conference proceedings, and journal articles related to AI's impact on education. Key search terms such as 'artificial intelligence,' 'machine learning,' 'education,' and 'student performance' were applied across multiple databases, including Google Scholar, PubMed, IEEE Xplore, and ACM Digital Library. These databases were chosen for their relevance and coverage of cutting-edge research in both educational and AI fields.

The data collection process involved sourcing scholarly articles, empirical studies, and theoretical evaluations published in peer-reviewed journals and major conference proceedings. A systematic review approach was employed to extract relevant findings, themes, and insights from the collected literature. Articles were selected based on predefined inclusion and exclusion criteria, focusing on research that specifically examined the role of AI in influencing student outcomes. To enhance the credibility and validity of the review, the literature was cross-checked to avoid selection bias, though it is acknowledged that some relevant studies may have been unintentionally omitted due to the evolving nature of AI research. Additionally, while the review sought to cover the latest trends, it is recognized that relying solely on existing literature may limit the inclusion of the most recent advancements.

The methodological approach adopted here offers a structured and thorough means of investigating the relationship between AI and student performance. By adhering to rigorous research

procedures and considering ethical concerns, this study aims to provide valuable insights into the implications of AI integration in education. The systematic methodology enhances the study's reliability and lays a foundation for future research in this rapidly developing field.

## 5. RESULTS

This section synthesizes the key findings from an extensive review of the literature on the impact of artificial intelligence on academic achievement. By critically analyzing a range of scholarly articles, empirical studies and experimental research, it aims to elucidate the broader implications of AI integration within educational environments. The review highlights both the transformative potential of AI technologies in enhancing personalized learning, improving academic performance, and fostering student engagement, as well as the challenges that arise from their use, such as concerns over equity, ethical considerations, and the displacement of traditional pedagogical roles. These insights provide a foundation for future research and underscore the importance of carefully designed policies to guide the responsible implementation of AI in education.

The study indicates that artificial intelligence technologies hold significant potential for enhancing various learning outcomes. Notably, intelligent tutoring systems and adaptive learning platforms have emerged as particularly effective tools. These AI-driven solutions excel in personalizing instructional content to meet the specific needs of individual students, thereby optimizing the learning process. By adjusting the pace, difficulty, and feedback in real-time, these technologies support differentiated instruction, fostering improved academic performance and engagement (Rekha et al., 2024). Additionally, AI-enhanced analytics and assessment technologies enable educators to monitor student progress with greater precision, allowing for more effective interventions. These tools facilitate the identification of students who require additional support and provide data-driven insights that inform personalized instructional strategies. As a result, AI fosters a more individualized learning environment, where tailored assistance can be offered on time to enhance student outcomes (Ferguson, 2012). Furthermore, AI has been shown to enhance teaching strategies by automating administrative tasks such as grading and lesson planning. This automation reduces the burden of routine tasks, allowing educators to allocate more time and attention to student engagement and instructional activities. By streamlining these processes, AI enables teachers to focus on fostering deeper learning and improving student outcomes (Luckin et al., 2016). Artificial intelligence (AI)-powered chatbots and virtual assistants can provide students with immediate feedback and support, fostering a more interactive and engaging learning environment. These tools enhance student participation by offering timely responses to inquiries and guiding learners through complex tasks, thus promoting active engagement and continuous learning.

While recognizing the potential educational benefits of AI, the report also highlights several challenges and limitations associated with its implementation in the classroom. These include concerns related to the ethical use of AI, the risk of algorithmic bias, data privacy issues, and the potential for over-reliance on automated systems at the expense of human oversight. Technical challenges, such as inadequate infrastructure and limited access to AI technologies, represent significant barriers to the effective implementation of AI in educational settings. These obstacles hinder the widespread adoption of AI tools, particularly in under-resourced institutions, thereby exacerbating existing inequalities in educational opportunities. Several significant challenges hinder the successful implementation of AI in education, including concerns related to

algorithmic bias, data privacy, and ethical implications. However, the evaluation remains optimistic about the future potential of AI, particularly with advancements in machine learning and natural language processing, which can better address students' needs and enhance educational outcomes. Moreover, the integration of AI with advanced technologies such as virtual and augmented reality is expected to create more dynamic and immersive learning environments. These technologies, when combined with AI, have the potential to enhance experiential learning, making educational experiences more engaging and interactive for students.

The analysis underscores the multifaceted impact of AI on student performance and academic achievement. While AI holds significant promise for enhancing teaching and learning, its full potential can only be realized by addressing the practical and ethical challenges it presents. These include ensuring equitable access, mitigating algorithmic bias, and safeguarding data privacy.

## 6. DISCUSSION

This section contextualizes the study's findings within the broader scope of educational research, clarifying key implications and proposing directions for future inquiry. The results provide valuable insights into how AI affects student achievement in various educational settings, highlighting both its potential benefits and challenges.

Positive Effects: the study reveals that AI, particularly through adaptive learning systems, has a positive impact on academic performance and student engagement. Adaptive learning tools offer personalized instruction, real-time feedback, and enhanced student interaction, leading to improved retention and academic outcomes. These systems allow for customized learning experiences tailored to individual student needs, thereby optimizing instructional methods and contributing to more effective learning environments.

Challenges and obstacles: however, the study also identifies significant challenges associated with the use of AI in education. Key concerns include the potential displacement of human teachers, algorithmic bias, and the risk of data privacy breaches. Additionally, the fairness and transparency of AI-driven grading and assessment systems have been questioned. While these systems offer consistency, there are ongoing debates regarding their ability to fairly evaluate diverse student populations, as well as the broader ethical ramifications of relying on automated assessments.

Implications for Educational Policy and Practice: the findings underscore the need for educators and policymakers to approach AI integration with caution and a clear understanding of its implications. First, AI technologies can enhance teaching and learning processes by helping educators identify student weaknesses, tailor instruction, and improve learning outcomes. However, teachers must receive adequate training to effectively integrate AI tools into their classrooms. Second, ethical, legal, and societal issues related to AI in education must be addressed. To mitigate risks like algorithmic bias, stakeholders must ensure transparency, accountability, and fairness in the development and implementation of AI systems. This requires robust policy frameworks that safeguard student data and promote equity in AI-driven educational practices.

In summary, the review highlights both the transformative potential and the inherent challenges of incorporating AI into educational environments. While AI can revolutionize teaching and

learning, careful consideration of the pedagogical, ethical, and societal dimensions is essential. The successful integration of AI into education requires thoughtful planning to ensure that the benefits of AI-driven advancements are accessible to all students, promoting fairness and inclusivity. Future research should explore strategies to overcome these obstacles and examine the long-term effects of AI on educational equity and student success.

## 7. CONCLUSION

The complex link between artificial intelligence (AI) and student performance inside educational settings in this in-depth examination was investigated. The exploration of existing literature provided insights into both the potential benefits and challenges associated with integrating AI technology into educational methods. The paper focuses on how AI interventions might improve learning outcomes for students by enabling quick feedback, customizing education, and promoting individualized learning experiences. Notably, there are intriguing prospects to increase student retention and academic achievement using AI-driven assessment tools, intelligent tutoring systems, and adaptive learning platforms.

To guarantee that AI is applied ethically and equitably in educational contexts, many pedagogical, social, and ethical issues have also been raised by this investigation. The necessity of careful thought and regulation in the creation and implementation of AI systems is highlighted by problems like algorithmic prejudice, data privacy issues, and the possible replacement of human instructors. To handle the potential and difficulties posed by AI in education, researchers, educators, and legislators must work closely together. We can make use of artificial intelligence's transformational potential to build inclusive, flexible learning environments that benefit every student by encouraging multidisciplinary discussion and engagement. In conclusion, even if artificial intelligence has a great deal of potential to transform education, its effective integration necessitates a sophisticated grasp of its advantages, disadvantages, and capabilities. We may work to fully realize artificial intelligence's promise to assist and improve student accomplishment well into the twenty-first century and beyond via ongoing research, innovation, and ethical contemplation.

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# The Role of Artificial Intelligence in English Literature Studies

Katarina S. Lazić[1]

**Abstract:** *The paper will explore the impact of artificial intelligence on English literature studies. Namely, it is proven that the employment of artificial intelligence when it comes to (English) literature might help potential readers discover the hidden patterns and themes that have been eluding them before. What is more, the usage of artificial intelligence and its application in (English) literature studies might represent a useful tool in determining and ascertaining authorship and consequently in protecting the intellectual property of the individual authors. The paper will also try to determine the pros and cons of its application in English literature studies.*

## 1. INTRODUCTION

Artificial intelligence has become one of the fields of greatest importance nowadays. Its impact might be discerned within the following fields: technology, economy, medicine, health care, finance, marketing, scientific research, language translation, etc. However, its importance ought not to be neglected when it comes to literature studies, most notably the conduct of literature reviews.

Concerning literature studies, the application of artificial intelligence is considerable and wide. Some of the examples of its use in the field of literature might include the following: determining the authorship of a certain literary work, interactive storytelling/live storytelling for kids, real-time reading experiences, determining the originality of a certain piece of literature, etc. What is more, nowadays there is a growing presence of AI-generated literary works. In the paper, the emphasis will be put on the last section, namely the AI-generated literary works.

Hu (2023, p. 1) in his paper entitled *Literature in the Age of Artificial Intelligence: A Preliminary Study on the Big Language Model AI,* stresses the importance of the so-called "GPT-4 language model". Namely, its main importance reflects in "examining the potential for new genres and styles while addressing concerns about authorship, originality, and bias" (Hu, 2023, p. 1). Apart from the GPT-4 language model there is, according to Hu, a growing presence of the use of the BERT language model. As some of the major merits of these language models, Hu in his paper stresses the following: "the ability to simulate the complex language patterns and literary creation characteristics unique to humans" and "the ability to output specific content according to requirements" (Hu, 2023, p. 1).

Despite the numerous benefits of AI-generated literary works, the experts point to the emergence of the so-called "creative destruction". Creative destruction refers to "the process in

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which economic growth and technological innovation promote industrial transformation, often leading to the elimination of old industries and the emergence of new industries (Hu, 2023, p. 2)." The said creative destruction might consequently lead to a reduced role of an author in the creation of a literary work and, what is more, to the potential "death of the author".

As some of the future benefits of AI-generated literature, Hu (2023) stresses the emergence "of new forms of literary expression, novel narrative techniques and more efficient content production processes" (p. 3). On the other hand, AI-driven literature might imply potential job losses in the writing industry, as well as the aforementioned "death of the author". However, despite the numerous benefits of AI-generated literature, and its potential threat to professions in the writing industry, experts often agree that artificial intelligence in the writing process can, by no means, replace the role of the human agent, its creativity and its craft.

This said, from the perspective of the abovementioned creativity and inventiveness, the human agent in the writing process proves to be utterly indispensable since algorithms and language models prove to be a poor replacement in the given aspect. Additionally, the emergence of AI-generated literature raises the question of authorship and copyright, since plagiarism, in that case, could hardly be proven, and even if proven, the perpetrator would not be liable to legal punishment: the act of plagiarism would in that case be committed by an algorithm and language model (i.e. artificial intelligence, while in truth by a human being that has employed it), which consequently implies that it would be difficult to discover the authentic identity of the real perpetrator.

The aim of the paper is to provide a brief account of the potential pros and cons of the application of artificial intelligence in literature studies (in general) and vicariously in English literature studies. In the research, a questionnaire has been employed. The corpus for the research consisted of primarily the students from the English department, of all levels of study (Bachelor, Master, PhD) and included the Faculty of Philosophy (University of Niš and University of Novi Sad), Faculty of Philology (University of Belgrade) and Faculty of Philology and Arts (University of Kragujevac).

## 2. THE RESULTS OF THE RESEARCH

Concerning the first question, namely what is their (respondents') preference when it comes to the form of reading a certain book, i.e. do they prefer it in a paper form, or eBooks, the majority (60%) answered that they still prefer books in the paper form, only small percentage (10%) opted for eBooks, while 40% of respondents said they were "fine with both options"

When it comes to their familiarity with some artificial intelligence models able to generate literary works, such as the GPT-4 language model, the results are the following: the majority of the respondents (50%) answered that they had certain information about the artificial intelligence language models, 40% percent of them said they were partially familiar with it, while a small percentage (10%) answered they did not possess any information about it.

Concerning the respondents' opinion about literary works that are generated by an artificial agent, the following results have been achieved: 60% of respondents answered that AI-generated literature could never replace that of a human being, 30% answered AI-generated literature had its benefits as well as its deficiencies (in comparison to the one generated by a human being), while only 10% responded that AI-generated literature would represent a great breakthrough in the field of literary studies.

When it comes to the respondent's opinion about the role of human agents and their creativity in producing a literary work, i.e. whether it could ever be replaced by artificial intelligence, the following answers have been singled out (the question was of an open form):

1. "yes" (affirmative answer).
2. "The unique thought processes of humans can sometimes be replicated by AI, though the majority of the greatest literary works stand out from AI-generated ones through their writing styles in conjunction with personal experiences. The connection with the author that the reader may have is also an exceptional touch to real literature that can never be replicated by AI (unless someone likes AI art for the sake of it being made by AI, though it's very rare."
3. "I don't think the human agent could ever be replaced by artificial intelligence."
4. "No, since AI creates its works based on other works that have already been written, thereby not creating any new ideas."
5. "No, I believe that producing a literary work involves certain aspects of human intelligence (like creativity and imagination) that artificial intelligence will never be able to mimic."
6. "no" (negative answer).

The majority of the respondents (80%) answered that AI might give rise to plagiarism (since the writing process would be performed by algorithms and different language models, 10% of respondents did not agree with the claim, while 10% partially agreed with it. When it comes to interactive storytelling/live storytelling for kids (i.e. storytelling performed by an AI agent), namely whether they think it could ever replace the role of a parent in the reading process, the results are the following: 70% of respondents answered they did not agree and that parents and children formed a certain bond through it. Additionally, genuine, spoken words by a human might serve as a model for a child's acquisition of language. 10% answered that artificial intelligence might be as efficient in this process, while 20% partially agreed with the given claim.

Concerning the respondents' opinion on whether artificial intelligence might help in determining the originality of a certain literary work, 50% of them answered affirmatively (claiming that this might be achieved through the comparison with the previous literary works), 20% said they did not think that artificial intelligence might prove useful in this process, while 30% partially agreed with the claim. When it comes to the respondents' familiarity with "Myreader AI" (i.e. a tool that reads and understands the content for its users), only 10% answered they were familiar with it and that sometimes used it. 60% did not have any knowledge of it whatsoever, while 30% answered they were partially familiar with it.

60% of respondents expressed their concern about the foreseeable possibility of the process of "creative destruction", namely that technological innovation might lead to the elimination of old industries (the writing industry as we know it) and the emergence of new ones (literature generated by AI). 10% answered they did not think it would ever take place, 10% said they hoped not, while 20% partially agreed with the given claim.

All things considered, 30% answered that the rapid technological advancement in the field of writing industry might bring about the "death of the author" (bearing in mind his reduced role in the writing process), 30% did not agree with this claim (in their opinion the human agent would eventually prove to be indispensable), 30% partially agreed, while 10% of respondents agreed with the claim but were simultaneously highly skeptical as to whether it would ever happen in reality.

## 3.   IMPLICATIONS OF THE RESEARCH

Based on the conducted research, the following conclusions might be drawn. First, in spite of the huge availability of an enormous corpus of eBooks, the majority of respondents still prefer books in paper form. The given fact might be attributed to sentimentality (reading paper books is the established form of reading, though some might consider it old-fashioned nowadays), to taking care of one's health (reading books online might be strenuous for the eyesight), the fact the respondents' possess a large home library, etc.

Second, the respondents' familiarity with artificial intelligence language models (e.g. GPT-4 language model) speaks in favor of the claim that artificial intelligence is an area of human activity that is still in its development in Serbia. However, the majority of respondents (even 60% of them) are not optimistic when it comes to the possibility of AI-generated literature replacing that of a human being. According to them, the human agent is still indispensable. In line with the given claim, most of the respondents stress aspects (such as creativity and imagination) that make human agents irreplaceable in the creation of a literary work.

Further, the majority of respondents (even 80% of them) express a concern that AI might give rise to an increase in plagiarism, or have a negative attitude when it comes to interactive/live storytelling for kids (70%), claiming it could impair the parent(s)-child(ren) emotional bond that forms through to process of reading/being read to, thus highlighting the negative aspects of artificial intelligence. Positive aspects are emphasized when it comes to determining the originality of a certain literary work: 50% of respondents answered that in this case, artificial intelligence might prove useful.

However, the negative (or, at least, indifferent) attitude of the respondents towards artificial intelligence prevails: namely, only 10% of the respondents sometimes use it and are familiar with "Myreader AI" (a tool that reads and understands the content for its users) and 60% of respondents express their concern that AI might bring about "creative destruction" and the cancellation of writing industry as we know it. Concerning the possibility of AI bringing about the "death of the author", the respondents were not unanimous: 30% of them allowed such a possibility, 30% were categorically against it, while 30% did not deny such a possibility, but were highly skeptical whether it might happen in reality.

## 4.   FUTURE RESEARCH DIRECTIONS

The future research directions consist of the following propositions. The conducted research has already indicated the problem of "creative destruction", namely the cancellation of the writing industry as we know it due to the emergence of AI-generated literature. According to Siau and Wang (2020), "automation has resulted in job loss and job displacement in certain industries and the rapid advancement in AI would accelerate this trend" (p. 77). Some future research might develop in the direction of the impact of the rapid advancement of AI on the profession of a writer and the possible "death of an author" due to his reduced role in the writing process. Furthermore, some future research ought to emphasize the social impact of ethical issues. Siau and Wang (2020) found that "the original intention of technology development is to assist humans and improve human lives. If automation and AI cause huge job replacement and unemployment, should we keep the rapid pace of technology development?" (p. 82).

Further, as the paper expressed concern that the application of artificial intelligence might give rise to an increase in plagiarism (since the writing process will be performed by algorithms and different language models), some future research might address the ethical dimension of the usage of artificial intelligence. According to Owe and Baum (2021), "the growing role of artificial intelligence (AI) technology raises important ethical questions about how AI systems should be designed and used" (p. 1). Etzioni and Etzioni (2018) explore the question of whether devices equipped with AI ought to be able to make ethical decisions, simultaneously dealing with the difficulties this approach often faces (p. 235-252). Also, Scwitzgebel and Garza (2020), advocate the creation of AI that would possess higher self-esteem, along with the greater amount of freedom to explore the other values besides those that humans have imposed on them (p. 459-479). Bearing in mind the ever-increasing usage of AI in all areas of human activity, future research ought to address the ethical dimension of AI-generated literature, as well as the possibility of AI to bring ethical decisions in the writing process (which particularly refers to the aforementioned plagiarism).

In the paper, the concern has been expressed that the parent-child relationship (through interactive storytelling/live storytelling for kids) might be impaired. According to Lee et al. (2022), "when we include AI in our moral circle, emotional bonds between humans and machines, as well as human-human relationships, could dramatically change in the future" (p. 1). Further, the authors emphasize that "AI may have instrumental value in helping one to learn to care, as long as technology does not replace human bonds" (p. 6). Some future research ought to address the impact of AI on the emotional bond between parents and children.

## 5. CONCLUSION

The paper has explored the role of artificial intelligence in the study and creation of (English) literature. AI has become an inseparable part of almost every area of human activity: consequently, its importance in the field of literature studies ought not be neglected. In the research, a questionnaire has been employed on the selected corpus of the students of Philological faculties in Serbia, with all levels of studies included (Bachelor, Master, PhD). Based on the obtained results, the following conclusion might be drawn: though AI is doubtlessly an increasing field of human activity nowadays, most of the respondents still express negative (or, at least, indifferent) attitudes when it comes to it. According to them, despite the rapid advancement of AI in the field of literature studies, some aspects such as creativity and imagination, AI could never replicate, a fact that makes human agents indispensable.

A possible future research might be conducted in the following directions: the impact of the rapid advancement of AI on the writing industry (specifically the profession of a writer), the ethical dimension of AI-generated literature, the possibility of AI to bring ethical decisions in the writing process (in relation to plagiarism), as well as the impact of artificial intelligence on the emotional bond between parents and children (in the process of reading/being read to).

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# Crypto Assets – Students' Knowledge and Attitudes

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**Keywords:**
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**Abstract:** *Crypto assets have raised a substantial interest among the general public, investment practitioners and academia upon its emergence. In this paper, we give a general overview of crypto assets and follow by presenting the results of a survey conducted among the students population. The general aim of the survey was to find out about students' knowledge about crypto assets and their attitudes about them. The results, based on the answers of 70 students, indicate that 41% of them have invested in crypto assets. The main reasons for making this investment are high expected profitability and friends' incentives. Most students have shown very basic knowledge about crypto assets and the majority of them share conservative opinions about crypto asset investment and their regulation and are more prone to traditional investments. The main contribution of this paper is in the scientific exploration of this under-researched area of the younger and educated population's attitudes on contemporary investment types, but also in providing a practical insight into the target population's crypto assets investment habits to make guidelines for future research.*

## 1. INTRODUCTION

Since its emergence in 2008, cryptocurrencies have raised substantial interest, firstly among the general public that started investing in this new and innovative investment form, and later on among the academia. The global cryptocurrency market cap in April 2024 amounts to $2.46 trillion (Forbes, 2024). Most active crypto users in the first quarter of 2024 are in the United States, Germany, India, Brazil, and Turkey (CMC Research, 2024). It is expected that the user penetration rate will amount to 10,76% in 2024 (Statista, 2024).

The focus of scientific research on crypto assets may be divided into three different fields: technical features of crypto assets, economic standpoint about crypto market functioning and psychological aspects related to investors' decisions regarding crypto investment. This paper is a result of research that took part in a joined work of a mentor and student on bachelor thesis research on an ICT faculty. The research aimed to find out more about ICT field students' knowledge of cryptocurrencies, their investment habits and attitudes towards this investment type. Following the introductory notes, we present a literature review with some of the most relevant findings related to this research. The third section presents the research methodology, results and a discussion about the main findings. In conclusion, we present guidelines for possible future research and finish by giving references.

## 2. LITERATURE REVIEW

Cryptocurrency is a decentralized medium of exchange that uses cryptographic functions to make financial transactions and is enabled by blockchain technology (Doran, 2014; Fang et al., 2022). Cryptocurrencies allow payments to be sent from one user to another without a financial intermediary,

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thus they have no physical representation, and their ownership records are maintained in a distributed ledger, while an algorithm determines the rate at which new coins are created (Smales, 2022). The blockchain technology that lies in the background of cryptocurrency investment is "*a series of immutable data records with timestamps, which are managed by a cluster of machines that do not belong to any single entity. Each of these data blocks is protected by cryptographic principle and bound to each other in a chain*" (Fang et al., 2022).

The emergence of cryptocurrencies dates back to the year 2008 when the nickname Satoshi Nakamoto proposed Bitcoin. According to Wątorek et al. (2021), the emergence of crypto in time simultaneously and following the global financial crisis was not accidental and it intended to provide a tool that allows financial transactions without a central banking or management institution via the Internet and is based on the idea of mutual trust between cooperating parties. Since cryptocurrencies are relatively young, the research results indicate their high volatility and the fact they are prone to frequent shocks (Anamika & Subramanian, 2023). Also, existing research indicates that investors' perceptions and sentiments impact crypto prices (Anamika & Subramanian, 2023; Corbet et al. 2019; Celeste et al., 2018). According to Akyldirim et al. (2020) in periods when investors are faced with increased fears, there is increased volatility in the cryptocurrency market.

The advantages of cryptocurrency include a relatively high sense of freedom for investors, since making a transaction with cryptocurrency does not require the control of intermediaries and users control the transactions. Also, transactions are faster and there are lower transaction fees for international fund transfers (Yeong et al., 2022). On the other hand, it is exactly deregulation of the market that makes a strong case for threats, such as thefts by human mistake or cyber-attack or fluctuations of cryptocurrency value which impact financial investments (Yeong et al., 2022). Bartoletti et al. (2021) drew attention to an increased number of cryptocurrency scams in which fraudsters are dedicated to deceiving potential investors to gain an undue advantage. They analyze scams on crypto markets, categorize them and propose a set of guidelines that could be implemented by policymakers. Some of the most popular crypto scam categories include Ponzi schemes, fake crypto services, malware, blackmail, advance-fee scams, money laundering and fake Initial Coin Offering (ICO).

Crypto assets have gained a substantial interest among the general public that is interested in investment, but also among the scientific circles. Fang et al. (2022) state that 85% of available scientific papers related to cryptocurrencies have appeared since 2018 and that they may be organized into several categories: (I) Cryptocurrency trading software systems (i.e., real-time trading systems, turtle trading systems, arbitrage trading systems), (II) Systematic trading including technical analysis, pairs trading and other systematic trading methods, (III) Emergent trading technologies including econometric methods, machine learning technology and other emergent trading methods, (IV) Portfolio and cryptocurrency assets including research among cryptocurrency co-movements and crypto-asset portfolio research, (V) Market condition research including bubbles or crash analysis and extreme conditions and (VI) Other Miscellaneous cryptocurrency trading research.

Additionally, there is also a direction of research related to different aspects of investors' portraits of the crypto market. For instance, Almeida and Cruz Gonzalez (2023) have conducted a systematic literature review of investors' behavior in the cryptocurrency market. The main findings from their bibliometric analysis include the following: (I) main drivers of crypto investment include social influence or public sentiment, and a good level of financial literacy, together with good performance expectancy and available resources, makes a strong case for investors' decision to enter the crypto market, (II) investors are driven by high profits and risk-seeking behaviors and (III) dominant

type of crypto investors are irrational, as they follow the market sentiment when making crypto investment decisions. Ante et al. (2022) find that besides investors' net income and ideological motivation for crypto investment, knowledge about cryptocurrencies is a significant predictor of return on crypto investment made. Yeong et al. (2022) find that individuals' intention to take part in the crypto market is defined by crypto performance expectancy, social influence, facilitating conditions and price value, but still, point out that regulators should develop a framework for the fair and regulated crypto market through the development of policies, training programs, forums and government-private linked initiatives. Benetton and Compiani (2024) show that younger individuals with lower incomes tend to show more optimism about the future value of crypto assets in comparison to late investors.

The main aim of this paper is to contribute to the existing body of knowledge about crypto investors, with a special focus on the ICT student population, their knowledge, habits and attitudes towards crypto assets. Therefore, this research may be categorized as research on the intersection of economics and behavioral science.

## 3.    RESEARCH RESULTS AND DISCUSSION

The research has been conducted as a part of the joined mentor-student work while working on the student's undergraduate bachelor of science thesis. The research methodology is based on a survey since it is the most convenient type of quantitative research methodology for gaining insight into respondents' attitudes. The main aim of the research has been to analyze students' knowledge and attitudes on crypto-assets, thus our target population was faculty students. The survey consisted of 25 questions that were divided into three sections: demographic questions, knowledge about crypto-assets, and attitudes about crypto-assets. The survey has been designed online and conducted in July and August 2022. The survey has been available to students in the ICT field. The number of respondents amounts to 70. Both undergraduate and graduate students took part in the survey. 55,7% of respondents were male and 44,3% female.

The main aim of the section related to students' knowledge of crypto-assets has been to gain insight into whether they understand basic terms and have knowledge about the crypto-market. There was a total of 8 questions in this section, wherein 6 questions were closed-ended and 2 open-ended. As for closed-ended questions, students were asked to reply to three statements specific to crypto-asset technology. The results are shown in Table 1. The first statement was: "*Bitcoin uses peer-to-peer technology*". 54,3% of respondents answered that they did not know the answer, while 42,9% of respondents gave the correct answer ("*Yes*"). The second statement "*Bitcoin enables making of smart contracts*" was answered correctly ("*No*") by only 11,42% of respondents. The third statement "*Ripple was made as a replacement for SWIFT*" was dominantly (48,6%) answered by "*I don't know*", while 42,9% of respondents answered correctly ("*Yes*"). The question about the number of crypto-assets on the market was correctly answered by 34,3% of respondents, while a high share of 64,3% of respondents underestimated the number of existing crypto-assets. As for identification of the two most widely used crypto-assets at the moment of survey conduction, 78,6% of respondents correctly identified Bitcoin and Ethereum. Regarding the question about what an online Bitcoin wallet is called, 58,6% of respondents identified the correct answer (*Hot wallet*), while the rest of respondents answered incorrectly. As for open-ended questions, students were asked which crypto-assets besides Bitcoin and Ethereum they knew. The most frequent answers were: Ripple, Dogecoin, Cardano, Tehther, Litecoin and Solana. Students were also asked which exchange they knew may be used in crypto-asset transactions. The dominant answers were Coinbase and Binance, followed by Revolut.

The results related to respondents' knowledge about crypto-assets and the crypto-market are rather interesting. The research sample consists of students in the ICT field, so it was supposed that they have a higher level of knowledge about crypto-technology. The results, on the other hand, seem to indicate that students are familiar with general information about crypto-assets, such as the names of most widely known crypto-assets and exchanges, but they have shown a rather significant level of ignorance about details behind the crypto-asset technology and its features. Only two of six closed-ended questions related to crypto-assets have been answered correctly by more than half of the respondents (questions 5 and 6). This finding may be relevant in terms of considering how different programs of crypto investment education may be beneficial to deepen the knowledge about this investment type.

**Table 1.** Analysis of crypto-assets knowledge questions

| Crypto-assets knowledge question | Correct answer | Wrong answer | "I do not know" |
|---|---|---|---|
| 1. Bitcoin uses peer-to-peer technology | 42,90% | 2,80% | 54,30% |
| 2. Bitcoin enables the making of smart contracts | 11,40% | 44,30% | 44,30% |
| 3. Ripple was made as a replacement for SWIFT | 42,90% | 8,50% | 48,60% |
| 4. Number of crypto-assets on the market | 34,30% | 65,70% | 0,00% |
| 5. Identification of the two most widely used crypto-assets | **78,60%** | 21,40% | 0,00% |
| 6. How an online Bitcoin wallet is called | **58,60%** | 41,40% | 0,00% |

**Source:** Own research

The respondents were asked about their behaviors and habits related to crypto-asset investment. Table 2 summarizes the results of the primary source of information about crypto-assets investment. As visible, the Internet was the dominant source of information about crypto-assets investment. Only 5,40% of respondents state that parents were their source of information, leading to the conclusion that on the one hand, younger generations tend to search for investment information outside their family environment, especially in cases when contemporary investment forms are concerned. On the other hand, it is questionable what Internet sources the respondents use to gather the investment information. Also, since 21,60% of them confirm that friends were their source of information, and having in mind the low level of knowledge about crypto-assets shown in the previous section, it is doubtful whether friends are a reliable source. Where we see additional space for crypto-asset investment is the faculty surrounding. 14,90% of respondents confirm to have been informed about this investment type at the faculty. This may present an opportunity to develop crypto-investment literacy programs and incorporate them as additional components of studies or a type of informal program offered to students.

**Table 2.** Primary source of crypto-assets investment information

| Source of crypto-assets information | Share |
|---|---|
| Internet | 44,60% |
| Friends | 21,60% |
| Faculty | 14,90% |
| Television | 13,50% |
| Parents | 5,40% |
| **TOTAL** | **100,00%** |

**Source:** Own research

41,40% of respondents have invested in crypto-assets. Among the investors, 31,80% invested less than 130 EUR, 42,20% invested the amount ranging from 130 EUR up to 1300 EUR, while 25,80% invested more than 1300 EUR. The most popular crypto-assets the respondents invested in include Solana, Bitcoin and Dogecoin.

Respondents' attitudes towards crypto-assets investment are shown in Table 3. As visible, although 58,60% consider crypto-assets to be a good investment, 64,30% prefer traditional investments, such as company stocks because they perceive them as safer. Even 70% of respondents believe that the crypto-asset market should be regulated. Although 57,10% would believe a friend in case of the crypto investment recommendation, only 38,60% would believe an anonymous online profile in case of showing high crypto earnings and recommending an investment. All of the views indicate a more conservative approach of respondents towards crypto-assets investments.

**Table 3.** Crypto-assets investment attitudes

| Crypto-assets attitude | Yes | No |
| --- | --- | --- |
| Crypto-asset is a good investment | 58,60% | 41,40% |
| Company stocks are a safer investment than crypto-asset | 64,30% | 35,70% |
| Crypto-asset market should be regulated | 70,00% | 30,00% |
| I would believe a friend if he/she recommended crypto-assets investment | 57,10% | 42,90% |
| I would believe an anonymous online profile if he/she recommended crypto-assets investment | 38,60% | 61,40% |

**Source:** Own research

In the section related to crypto-asset investment attitudes, the respondents also could express their views in the form of open-ended questions. When asked about the incentive, i.e. basic motive why they would invest in crypto-assets, the most frequent answers were: "*I believe they are profitable*" (27,10%) and "*My friend is investing*" (20%). When asked about the main advantages of crypto-investment, the majority of respondents (64,30%) state that it is "*privacy*", followed by "*safety*" (42,90%), "*decentralization*" (42,90%) and "*quick fund transfer*" (42,90%). The respondents identified the main disadvantages as "*form of money laundering*" (72,90%), "*financing illegal activities*" (68,60%) and "*tax avoidance*" (52,90%). These answers indicate a relatively high share of students with mistrust issues towards crypto-investment and are an indication of ethical concern of younger generations.

## 4. CONCLUSION

We believe this research may be an impetus for future research on larger samples and on different demographic profiles of respondents since our research was based on ICT students. Our research seems to suggest that the young generation of students shows an inclination to more traditional investment in comparison to crypto-investment and ethical considerations related to the crypto-market. On the other hand, the respondent's main source of information was the internet or friends, joined with a high share of respondents who invest or would believe to invest in crypto when encouraged by a friend. Given the relatively low knowledge level related to crypto-assets shown in the research, we believe that a more transparent system of crypto-market with reliable information would be preferable. Also, we encourage that different types of formal and informal education related to crypto-assets are encouraged on different educational levels. We, thus, encourage future research in three directions. Firstly, scientific research of crypto-markets both from the supply and demand side is necessary to increase transparency and global understanding level of how the market and its participants behave. Secondly, risks associated with its functioning and investing in it should be carefully analyzed and transparency of crypto-market should be increased. Thirdly, we believe that in practice financial literacy programs related to crypto market would be beneficial, especially for younger generations that will be faced with emerging investment types in the future.

## Acknowledgment

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# A DPSIR Model for the Tourism Sector Sustainability – Case Study Albania and Latvia

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**Abstract:** *Albania and Latvia are regarded as emerging travel destinations. Each year, both countries welcome many tourists, which greatly boosts employment and economic growth. However, these countries now face a greater danger of environmental contamination and unsustainable resource use due to the rapid growth of their tourism industries. The sector's environmental issues may make it more difficult to achieve the Sustainable Development Goals, particularly Goals 6, 7, and 12. Today, the focus is on the ecologization of the tourism industry to address these issues. This allows for the development of industry sustainably and the adaptation of profitable, sustainable, and ethical practices to strike a balance between the expansion of tourism and environmental preservation. This research paper aims to evaluate the ecologization of the tourism sector in Latvia and Albania. The environmental impact of this industry is analyzed using the Driver – Pressure – State – Impact - Response framework. The European Environment Agency has developed this approach to address environmental issues, measure environmental conditions, assess the impact of the tourism industry on the environment, and identify the elements contributing to environmental problems. This can support the development and application of policies that promote sustainability and ecologization in the tourism sector of both countries. This paper complements the literature on the tourism sector's sustainability.*

## 1. INTRODUCTION

Tourism is becoming an important sector in Albania and Latvia, following the global trend of this industry, which contributed about 7.6% of global GDP in 2022, increasing by about 22% from 2021. The contribution to employment in 2022 was more than 22 million new jobs, which represents an increase of about 7.9% from 2021. In Albania in 2021, the tourism sector contributed 7.5% of GDP, while the total contribution together with other tourism-related sectors was about 17.5 % of GDP, while in Latvia, in 2020, the share of tourism and related sectors was 5.5% of GDP. In 2021, Latvia was ranked 48th in the Travel and Tourism Development Index ranking, while Albania was ranked 72nd, among the 112 countries included in the evaluation. The intensive development of the tourism industry is accompanied by the risk of unsustainable use of natural resources. The tourism sector requires intensive use of natural resources, and increased use of water, energy, and land. Studies have shown a negative impact of this industry on the environment, causing depletion of resources, high pollution, greenhouse gases, etc. (Gössling et al., 2005). According to the World Travel and Tourism Council, travel and tourism emissions of greenhouse gases account for 8%-11% of global emissions. In recent years, the sustainable development of tourism is becoming more and more important, i.e. its growth in terms of employment and the income it generates, having as little impact on the environment as possible. For this reason, importance is placed on the sustainable development of tourism, including some of the SDGs, especially no. 6, 7 and 12. Albania and Latvia have many things in common as far as the tourism sector is concerned. Both countries offer opportunities for tourism throughout the year. They have wide beaches, cultural

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and historical sites, amazing nature, and green forests. Both countries are included in the UNES-CO list of World Heritage sites. In recent years, they have also seen rapid growth in health tourism.

The purpose of this article is to present a sustainability analysis of the tourism sector in Albania and Latvia, using the DPSIR framework. The literature review in the second section gives an overview of studies that have used this framework to analyze the sustainability of the tourism sector in various countries. The DPSIR model is analyzed in the third section. Conclusions are given in the fourth section. To our knowledge, there are no other papers that have used the DPSIR framework to analyze the environmental impact of the tourism industry in Albania and Latvia. This paper can complement the literature on the tourism sector's sustainability.

## 2. LITERATURE REVIEW

The DPSIR model has been used in studies in different countries of the world to analyze the sustainability of the tourism sector. He et al. (2023) applied the model to evaluate tourism ecological security in the Yellow River Basin in China. They emphasize that the driving forces are related to economic, social and tourism developments. As driving forces, the authors suggest the growth rate of tourists and income generated by tourism, urbanization rate, population growth, GDP per capita, and real growth. As pressure indicators, the authors suggest population density and tourism, SO2 emissions, solid waste output and industrial wastewater discharge. The state has been analyzed using economic and environmental indicators, such as income from domestic tourism, income per capita, the percentage of the built-up area that is green and the level of particulate matter. The impact indicators are related to the economic impact of tourism, the contribution to GDP and economic growth and employment.

The DPSIR model is used by Mulyawati et al. (2020) to analyze the ecologization of tourism in Tanjung Lesung, which the Indonesian government declared as a special economic zone with a focus on tourism in 2012. The authors suggest the number of tourists, population as well as natural attractions and historical as driving forces for the development of tourism in this area. Natural disasters, infrastructure development related to tourism and pollution caused by tourism activities are the indicators that the authors suggest for pressure. The state has been analyzed through indicators that show water pollution, changes in the destination of land use and damage to the coral reef. The authors analyze the ecological, social, and economic impact of tourism in this area through indicators that show the damage to the environment and natural resources, the increase in the income of the residents of the area and the change in people's behavior due to tourism.

Likewise, Lu et al. (2023) use the DPSIR model to assess the health of the tourism ecosystem in China. As the driving force for the development of tourism in this country, the authors suggest the income per head, the rate of urbanization and the natural growth of the population. Pressure on the environment is measured through indicators showing the level of SO2, sewage discharges, population density and the amount of water consumed per capita. The state of the environment is determined through the % of days with clean air, tourism resources density, the density of tourism facilities and agencies, income from domestic tourism, as well as foreign currency income from tourists. The impact of the tourism industry is measured through the % of ecological land, the increase in environmental disasters, and the share of tourism-related activities in GDP.

In a study of cities in different countries of the Mediterranean area, Pivčević et al. (2020) analyze the sustainability of tourism developments, using the DPSIR model. A high number of

indicators have been suggested as driving forces, such as: competitive prices, maritime, air and land infrastructure, tourist and entertainment facilities, monuments and other natural attractions, hotel capacities, GDP per capita as well as % of people employed in tourism and other related industries. The authors suggest as indicators for pressures the number of international and domestic tourists, the number of nights spent in tourist units and the number of congresses held in the areas included in the study. The state of the environment has been measured through safety indicators, the quality of the natural environment, the degree of satisfaction of the residents as well as the sustainable development of tourism and transport.

Using the same model, Mandić (2020) analyzes the sustainable development of tourism in protected natural areas. The author suggests that internal and external factors affect the development of tourism in these areas. As external factors, the author suggests globalization, the growth of regional and international tourism, regional and international economic and social developments, and innovations. As internal factors, the efficiency in the management of protected areas, their monitoring, as well as an appropriate regulatory and organizational framework were analyzed. As an indicator of Pressure, the author suggests the growth of foreign tourists, the development of information technology related to tourism, the effects on protected resources due to climate change, and the measure of the achievement of objectives related to the protection of areas. The state has been analyzed from the point of view of the ecological, economic, and socio-cultural environment, through the measure of the change of the protected ecosystems, the change in the economic development of the protected areas and the change within local community and visitors. Generally, the same indicators are used in many other studies of the DPSIR model for tourism sustainability (Raj Sharma & Bisht, 2019; Sobhani et al., 2023; Swangjang & Kornpiphat, 2021; Zovko et al., 2021).

## 3. THE DPSIR ANALYSIS

Tourism relies on natural resources; it requires an excellent condition of them. The indicators that serve for the analysis of the DPSIR model in Albania and Latvia have been selected bearing in mind this basic requirement for its development.

### 3.1. Driving Forces of the Tourism Industry Development

#### 3.1.1. GDP growth as a Driving Force

Albania and Latvia have a common past. As ex-communist countries, in the early 90s, they began the transformation from a command economy to a market economy. The undertaken reforms have made it possible for Latvia to join the European Union, while Albania is making significant progress in fulfilling this goal. The economies of both countries have grown significantly and constantly, as it is shown in Figure 1. The average growth rate was 3.48% for Albania and 1.25% for Latvia.

Economic growth ensures employment and well-being for residents. The increase in income increases the consumption of products and services, including tourism services.

#### 3.1.2. Tourist Arrivals as Driving Force

Although statistics for domestic tourism are missing for both countries, those for international tourism are a good indicator of the development of the tourism sector. Figure 2 shows the number of tourist arrivals in both countries. Since the 90s, the number of foreign visitors to Albania has increased

steadily. Passing even the number before the pandemic, in 2022, Albania was visited by about 7.5 million international tourists, most during the summer season, which begins at the end of May and continues until September. Even in Latvia, a steady increase in the number of tourists was observed until 2019, when Latvia was visited by about 8.3 million visitors. However, after the pandemic, the number of visitors has reduced. In 2022, Latvia was visited by only 1.14 million international tourists.
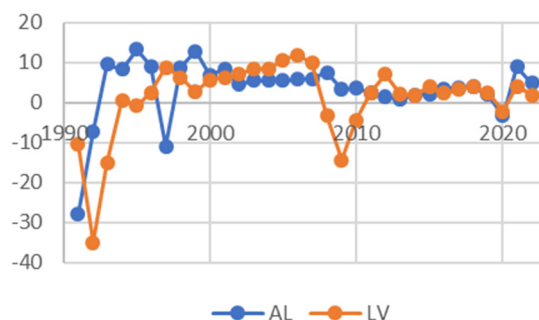


**Figure 1.** GDP growth in Albania and Latvia
**Source:** World Bank., n.d.
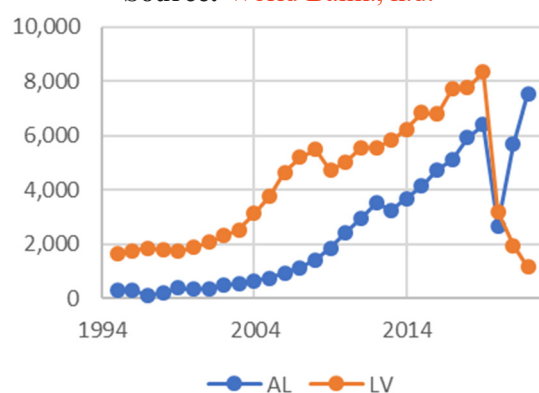


**Figure 2.** Tourist arrivals in Albania and Latvia (000)
**Source:** World Bank., n.d.

## 3.2. Pressure on the Environment

### 3.2.1. Waste Generation as Pressure

It is obvious that the high number of tourists in both countries will cause a generation of waste, both solid and liquid. Figure 3 shows the waste generated in Albania and Latvia for the period 2013-2021. The generation of waste in Albania seems to have been decreasing from 2015, when it reached its highest level of 1.4 million tons until 2021, when 875 thousand tons were generated in Albania. However, according to EEA (2021), the downward trend should not be interpreted as a reduction, but as an improvement in the reporting of waste data. In Latvia, waste generation has been constantly increasing. In 2013, Latvia were generated 703 thousand tons of waste. In the following years, there has been an increase in this quantity, where in 2020 the largest amount was generated, 909 thousand tons.

### 3.2.2. $CO_2$ Emissions by Sector Air Pollution as Pressure

Figure 4 shows $CO_2$ emissions in Albania for the period 2007-2020. $CO_2$ emissions are considered one of the main causes of global warming and climate change. In the process of burning fossil fuels, making steel, cement, and polymers, as well as raising food for human use, greenhouse gases

like carbon dioxide are released into the atmosphere. In Albania, the biggest emitter of $CO_2$ is the transport sector, which since 2007 has emitted more than 2 million tons every year. The highest level of emission was in 2014 with 2.48 million tons, while in 2020 the emission of the transport sector dropped to 1.53 million tons. The second largest contributor to emissions is the industry sector with an average emission of 876 thousand tons, followed by the manufacturing and construction sector with an average emission of 840 thousand tons during the period 2007-2020.
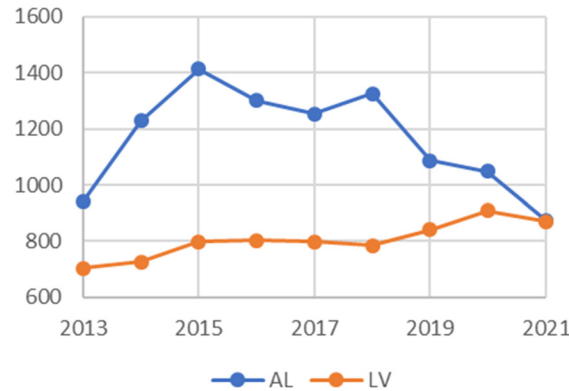


**Figure 3.** Waste generated in Albania and Latvia
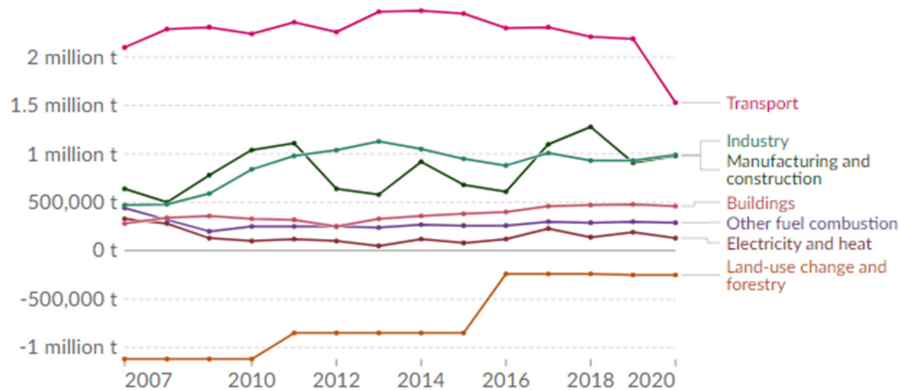
**Source:** Eurostat, n.d.



**Figure 4.** $CO_2$ emissions by sector in Albania

**Source:** Our World in Data, n.d.



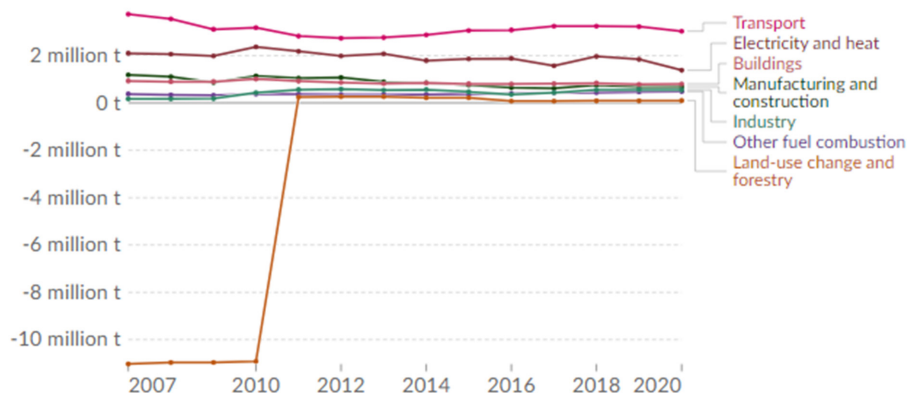**Figure 5.** $CO_2$ emissions by sector in Latvia

**Source:** Our World in Data, n.d.

Even in Latvia, the transport sector has the highest $CO_2$ emissions, with an average of about 3.12 million tons during the period 2007-2020, as shown in Figure 5. The highest emission value was

in 2007 with 3.75 million tons. The second largest emitting sector is that of electricity and heat with an average of about 1.9 million tons.

Tourism is one of the major consumers of transport, so it is obvious that the high emissions of the transport sector also reflect those of the tourism sector.

### 3.3. State: Environmental Changes

#### 3.3.1. Water Pollution

Overpopulation and lack of adequate infrastructure will result in environmental consequences, such as water pollution. In Albania, according to the EEA Report (2023), it appears that in a considerable number of zones, the waters are polluted. In the coastal cities with important tourism, such as Vlora, Durrës, and Saranda, in some areas of the beaches sewage waters are discharged into the sea. Figure 6 shows the coastal water quality in Albania.
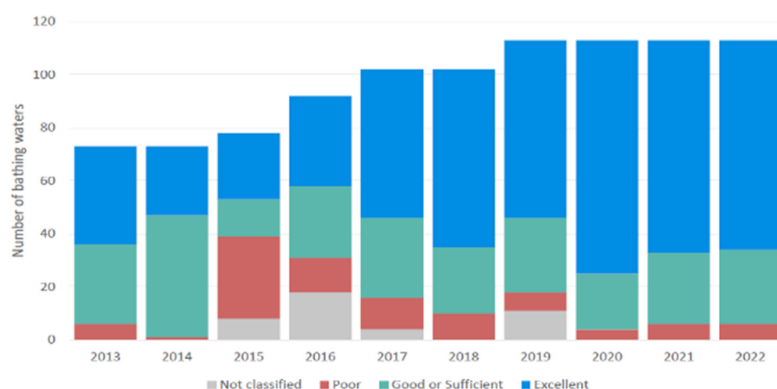


**Figure 6.** Coastal water quality in Albania
**Source:** EEA, 2023

As it is shown in Figure 7, in Latvia the situation is more positive. After 2011, areas with polluted water have not been identified along the coast, and most zones result in excellent water quality.
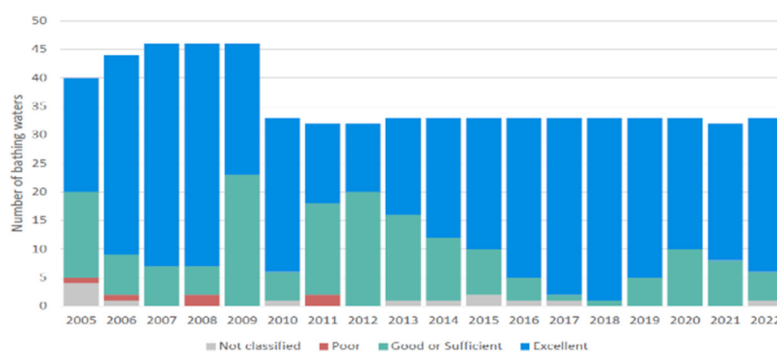


**Figure 7.** Coastal water quality in Latvia
**Source:** EEA, 2023

#### 3.3.2. Natural Resource Depletion (%GNI)

The development of different sectors of the economy, including the tourism sector, is accompanied by the consumption of resources. Depletion of natural resources is the result of the

combined effects of depleting minerals, energy, and net forest. Figure 8 shows the depletion rate of natural resources in Albania and Latvia. The average value of resource depletion in Albania is 1.05% of GNI during the period 2006-2021, with the highest value of 2.44% in 2014. In Latvia, the average value is only 0.05% of GNI, suggesting a more sustainable use of resources compared to Albania.
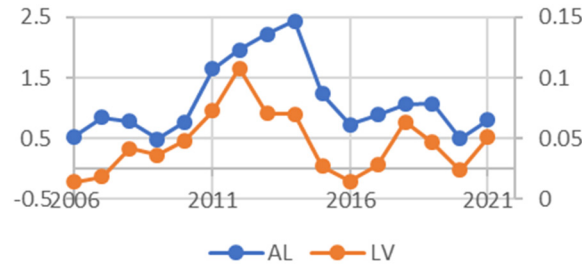


**Figure 8.** Natural resource depletion in Albania and Latvia
**Source:** World Bank, n.d.

## 3.4. Environmental Impact of the Tourism Industry

There is no data on the direct impact of tourism on the environment, however, tourism is an intensive user of transportation services and the transport sector in Albania and Latvia is the main contributor to the emission of $CO_2$, polluting the environment. The environmental impact in this article is analyzed through $CO_2$ damage (% GNI), as it is shown in Figure 9. In Albania, an increasing trend is observed during the period 2008-2021, with the highest level in 2017, with environmental damage equivalent to 1.47% of income. The average level of damage in Latvia accounts for around 0.85% of income, with the highest level in 2010, with about 1.01% of them.
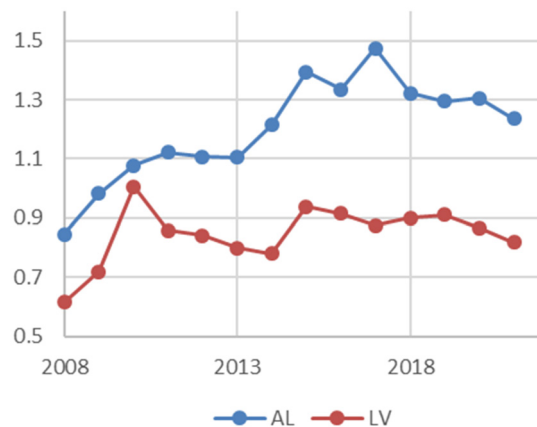


**Figure 9.** $CO_2$ damage (%GNI) in Albania and Latvia
**Source:** World Bank, n.d.

## 3.5. Response to Environmental Changes

2010 saw the launch of Albania's first waste prevention program (WPP). The primary objective of the Integrated Solid Waste Management program (ISWM) is to establish several policies and strategic directives that assist the nation in achieving its EU membership requirements by carrying out the environmental duties outlined in Chapter 27. The development of the "zero waste" concept, which calls for the collection and treatment of trash as raw materials and management carried out in accordance with the circular economy, led to the definition of

waste management as a national priority. The ISWM outlines several goals, including improving waste management by adhering to legislative planning criteria and fundamental principles; creating an integrated management system based on the waste hierarchy for additional municipal waste streams; all hazardous waste streams produced by the public and private sectors within the nation's borders have been identified. The program also intends to raise public awareness, which means that people will use and respect waste infrastructure and participate in the actions taken to achieve the program's goals.

The new National Waste Management Plan (NWMP) "On the approval of the strategic policy document and national action plan on integrated waste management, phase 2020-2035" aims to move from a linear economy to a circular economy in which resources are used more sustainably, focusing on: identify and define methods and technologies for future investment in waste treatment within an integrated waste management system, including equipment for collection, composting, recycling, incineration for recovery energy and disposal based waste management zones; determine the costs and fees associated with waste disposal at treatment plants and waste transfer stations; a transparent and objectively verifiable system of investment priorities related to waste management infrastructure, built on needs and impact assessments. The new NWMP identifies nine specific targets and 31 measures spread over 15 years. All measures are set out in three phases, with targets for 2025, 2030 and 2035, and identification of the agency responsible for implementing the measures. The targets of the new NWMP are somewhat similar to the corresponding targets defined in European waste legislation. The targets for 2025 are Scope of collection: at least 80% of the population and 90% of generated waste; Landfill rate: maximum of 50% of generated municipal waste; Biodegradable waste: Reduced landfilling of biodegradable waste to 75% of biodegradable household solid waste generated in 2016; etc.

Numerous indicators regarding the generation of hazardous, industrial, and household waste are part of Latvia's waste plan and prevention program. The goal is for less than 650,000 tons of municipal waste to be generated annually by the year 2028. Additionally, the amount of recycled municipal waste is expected to increase from 43% of 2018's waste generation to 55% of 2028's waste generation, and the amount of recycled hazardous waste is expected to increase from 31% to 75% of 2018's waste generation, and the amount of recycled production waste is expected to increase from 83.3% to 85% of 2018's waste generation. Latvia intends to carry out and enhance the yearly "My Sea" campaign of the Environmental Education Foundation, which was initiated in 2012. The foundation created guidelines in 2019 for towns on how to stop waste streams from priority sectors from polluting the sea, along with a compilation of successful case studies from the Baltic Sea region and other nations. Measures to reduce marine litter on land have been developed based on the Baltic Marine Environment Protection Commission (Helcom). These include establishing sanitary infrastructure along the coast and inland nature tourism facilities, as well as making it easier for recreational craft waste to be collected from marinas. These measures are developed following the requirements of the eco-certificate "Blue Flag" for waste reception and management in marinas.

## 4. CONCLUSION

The purpose of this article is to make an analysis of the sustainable development of the tourism sector in Albania and Latvia using the DPSIR model, which uses an inductive analysis to assess the possible impact of the tourism sector on the environment. The variables used in this paper have been selected considering similar studies as well as referring to Sustainable Development Goals, the fulfillment of which is an obligation for all countries. Latvia is an EU country and as

such has a reporting and monitoring system for the state of the environment. Albania is not yet an EU country, but Albania is trying to draft policies and adopt measures that are in line with those of the EU countries. For both countries there is a lack of data on the direct impact of the tourism sector on the environment, however, data show that its development, increase in pollution and overuse of natural resources move in the same direction. For this reason, both countries are trying to implement strategies to protect the environment.

Both Latvia and Albania seem to have bright futures for sustainable tourism, as they both come to understand how important it is to protect their natural and cultural resources. In Albania, a nation well-known for its unspoiled scenery and lengthy history, responsible tourism is becoming more and more important. To preserve the nation's varied ecosystems, efforts are being made to support local communities, encourage eco-friendly lodging, and carry out conservation projects. Similar to this, Latvia is aggressively promoting responsible travel practices and safeguarding its rich cultural legacy in order to promote sustainable tourism. Both countries are making investments in infrastructure that reduces its negative effects on the environment and promotes immersive, real-world experiences for tourists. Albania and Latvia prioritize sustainability to achieve a balance between the growth of tourism and environmental protection.

Albania has acknowledged the value of including sustainability education in its curricula. The nation is working to integrate issues of sustainable development and the environment into its educational system at different levels. Growing an understanding of environmental challenges, sustainable behaviors, and the importance of biodiversity protection is emphasized in education from primary to university levels. Among the initiatives are changes to the curriculum, the addition of specialized courses, and extracurricular programs that encourage environmental responsibility. Latvia has been proactively incorporating sustainability into its curriculum. The nation has launched programs at different educational levels to promote an awareness of environmental preservation and ethical living by introducing sustainability issues into curricula. There is a dedication to advancing ecological consciousness, sustainable practices, and the protection of Latvia's natural resources from elementary schools through colleges. The emphasis on sustainability in education is consistent with Latvia's overarching goal of building a future society that is more ecologically conscious and resilient.

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# Albania's Tourism Landscape:
# A SWOT Analysis for Sustainable Development

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**Abstract:** *Albania is a small country in southeast Europe with an abundance of natural and cultural landmarks. Considering the state of international travel today and its projected expansion, many countries see tourism as a hugely promising industry. Albania's natural and cultural features make it an attractive place for the expansion of tourism. Albania's tourism industry has expanded steadily and considerably, keeping pace with the world economy. The tourism industry is a vital component of the Albanian economy, providing significant direct and indirect employment contributions as well as infrastructural investments. Since 1992, there have been numerous articles regarding Albanian tourism discussing the future goals of this industry (Burlea-Schiopoiu & Ozuni, 2021; Lazimi, 2021; Ylli, 2016). According to experts, there is a noticeable absence of a clear vision and appropriate, attainable goals in the developed strategy. In any event, the development of tourism was chaotic and without a strategic focus, even in the present day. This industry needs to be developed with careful planning and study. All stakeholders involved in the tourism business cannot gain equitably from this industry if there is no proper strategy in action. In light of this, it is essential to use a method like the SWOT (strengths, weaknesses, opportunities, and threats) analysis to look at several strategic aspects of the tourism business. SWOT analysis is a very helpful tool to utilize as a preliminary step before doing a more thorough examination of sustainable tourism. The data for the study was gathered from many sources, including a review of the literature, interviews with business professionals, and stakeholder groups from the quadruple helix, which includes civil society, private businesses (start-ups, SMEs, and corporations), academic institutions (researchers, universities), and public institutions at the local, regional, and national levels. Consequently, participants from every sector are active in the innovation processes, leading to outcomes that benefit all stakeholders. To establish strategic priorities, the nation's tourism industry's internal strengths and weaknesses as well as external opportunities and threats were examined. Next, a framework for strategic planning was created using the SWOT matrix.*

## 1. INTRODUCTION

Many points of view, value-laden arguments, and the interests of numerous groups and communities are represented in debates about sustainability and sustainable development at the local, national, and international levels in the public sphere. These debates include those pertaining to education, law, policymaking, and political-social-economic negotiations (Cicmil et al., 2017; Curry, 2011; Hutchings, 2010; Painter-Morland et al., 2016).

The goals of sustainable development cover a wide range of topics. A single one of them is tourism-oriented. There are two types of tourism: domestic and foreign. Foreign tourism affects a

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nation's balance of payments both inwardly and outwardly. In many nations nowadays, tourism is a significant source of revenue. It also has an impact on the economies of the source and host nations, sometimes playing a critical role. Even though a lot of developing regions look to tourism as a means of boosting their economies, these regions frequently lack various sorts of finance in the beginning. According to Butler's (2004) tourist area lifecycle, early-stage destinations are those that are still in the development stage and are frequently found in developing nations. Despite having a wealth of tourism resources, their poor brand influence and early development stage prevent them from having the necessary capital to generate value. These locations, which are predominantly male-dominated and situated in rural areas with an emphasis on development and economic benefits, have been referred to as emerging destinations in certain research. Planning, coordinating, and regulating tourism development is often the responsibility of local governments (Tosun, 2006; Zhang et al., 1999). However, the private sector is playing a bigger role, and entrepreneurship is now a key driver (Dana et al., 2014; Jaafar et al., 2011; Lordkipanidze et al., 2005; Zhou et al., 2017). Albania offers a wide range of tourism activities, including hiking, agrotourism, medical tourism, and beach vacations. The Albanian government has been working hard to draw visitors to the nation's numerous attractions, and in recent years, the number of arrivals has climbed.

This article provides a SWOT (strengths, weaknesses, opportunities, and threats) analysis tool to investigate various strategic factors within the tourism industry. SWOT analysis is widely applied, which demonstrates its value and clarity in identifying areas for the growth of systems (Beloborodko et al., 2015). Significantly, SWOT analysis enables the quantification of the impacts of alternate strategies for management as well as forecasting potential opportunities and threats (White et al., 2015). SWOT analysis is a very helpful tool to utilize as a preliminary step before doing a more thorough examination of sustainable tourism. As a result, representatives from every industry are included in the innovation processes, producing outcomes that are advantageous to all parties involved. SWOT analysis is one of the most crucial editing strategy tools. According to Feili et al. (2016b), SWOT analysis is comprised of two distinct parts: SW and OT. The first is primarily utilized for analyzing internal factors, while the latter is the second for analyzing external factors. By using this technique, we may identify the aspects of Albania's tourism development that are in our favor and are worthwhile promoting, while avoiding the unfavorable ones.

## 2. METHODOLOGY

During the initial stage of planning, the researchers found that in order to achieve the goals of the study, primary and secondary data were required. The significance of tourism in Albania was investigated through the use of secondary quantitative data. Making a SWOT analysis for the development of sustainable tourism in Albania was made possible by primary data obtained through in-depth interviews.

Research data requirements should guide the methodological selection, as Robson (2011) illustrated. The study's data came from a variety of sources, including a review of the literature, interviews with professionals in the business world, and stakeholder opinions from the quadruple helix: public institutions (at the local, regional, and national levels), private businesses (start-ups, SMEs, and corporations), academic institutions (researchers, universities), and civil society. In order to construct strategic planning based on the SWOT matrix, it was necessary to first examine the strategic aspects pertaining to the nation's tourist industry, including its internal strengths and weaknesses as well as external opportunities and threats. Consequently, it was decided that a qualitative approach would be the most suitable for gathering information about people's descriptions,

feelings, and perceptions as well as their implications (Bryman, 2016). It gave us the chance to investigate the essential traits, significances, and effects of tourism development. In-depth interviews include questions as in the table below:

**Table 1.** Questions of interviews

| ELEMENTS of SWOT | QUESTIONS |
|---|---|
| **Strengths** | • What are the assets for tourism development in Albania?<br>• Which one of those assets is the strongest?<br>• What makes Albanian tourism better than competitors?<br>• Does Albania have a strong customer base?<br>• What is the unique thing about tourism in Albania?<br>• Does Albania have skilled labors?<br>• What are the things that people say about why they came to Albania?<br>• What are the advantages Albania has over its rivals? |
| **Weaknesses** | • What areas of tourism need improvement?<br>• What are the things that business needs to avoid?<br>• What areas do tourism competitors have an advantage in?<br>• Are you lacking in knowledge?<br>• Are Albanian employees not skilled enough?<br>• How do you evaluate Albanian capacity for tourism demand?<br>• Is the Albanian customer base in tourism too low?<br>• Are competitors running miles ahead of you? |
| **Opportunities** | • What external changes will bring opportunities to the Albanian tourism industry?<br>• What are the current ongoing trends?<br>• Will these trends positively affect tourism?<br>• Can you take advantage of the local market?<br>• What is the market missing?<br>• Can Albania provide that missing link for the consumers?<br>• Are Albanian rivals in tourism failing to satisfy their customer base?<br>• If so, can you steal their customers?<br>• Will natural causes like weather and climatic changes give Albania a competitive edge?<br>• Is Albania's brand name helping in developing the industry? |
| **Threats** | • What are the negative aspects of the current market?<br>• Are there potential competitors who can give you a competition in the future?<br>• What are the obstacles in Albanian tourism?<br>• Is Albanian employee who works in the tourism industry satisfied with their wages and benefits?<br>• Do you see a change in consumer taste in tourism?<br>• Does the government regulation stimulate or hinder the development of tourism in Albania?<br>• Will political instability hurt tourism? |

**Source:** Own research

## 3. THE TOURISM INDUSTRY IN ALBANIA

Consistent with the worldwide tourism industry, Albania's tourism sector has experienced significant expansion. With significant direct and indirect contributions to employment and investments in tourism infrastructure, tourism is a key industry of the Albanian economy. All of Albania's biggest industries had general economic growth, which coincided with the growth in the tourism industry. Given the challenges facing the Albanian economy's medium- and long-term expansions, the tourist industry is thought to have the greatest potential for increased economic growth, as well as favorable effects on the increase of employment and real income.

This evaluation of tourism's effects on Albania's economy is also predicated on the findings of global research, which indicate that, in spite of global economic fluctuation, tourism has demonstrated steady stability with social and economic transformation. This is seen in the World Tourism Organization's Yearbook of Tourism Statistics, Compendium of Tourism Statistics and data files (World Tourism Organization, n.d.), which shows that foreign visitor numbers rose by 14% in 2017, 15% in 2018, and 20% in 2019. With 6.4 million tourist arrivals in 2019 UNDP (2022), the Albanian economy received 2.45 billion US dollars in direct spending UNDP (2022). Based on direct, indirect, and induced effects from other industries like retail and transportation, certain projections estimate the industry's contribution to GDP to be between 15% and 20%. As a result, this industry has become one of the main pillars of the national economy. Albania's place in the global tourism market has increased and grown more solidly despite the legacy of the past, which has several downsides including seasonal tourism, poor service quality, low average pricing, and substandard personnel.

The World Travel and Tourism Council (2022) has published Albania's tourism-related data for the year 2019. The tourism industry was found to have contributed 20.3% of the country's GDP in 2019, with a rise of 8.5%. With almost 275.6 billion ALL ($ 2.652 billion) in revenue, it accounted for 50.3% of total exports. In addition, the tourism industry employs 21.3% of the total population in employment in the country. The total number of people was reported at 243,800 in 2019 (World Travel and Tourism Council, 2022).

The COVID-19 pandemic sparked international problems, a financial and health crisis, and ripple effects throughout numerous industries, most notably the tourism and travel industry. Most nations implemented border closures, stopped hotel operations, travel prohibitions, and quarantine restrictions beginning in March 2020 (World Tourism Barometer, 2020); these policies were later relaxed or changed in response to evolving epidemiological conditions. As a result, foreign arrivals dropped, with a -59% drop in Albania, leading to a significant decline in GDP (UNDP, 2022)

Despite the challenges caused by the pandemic, Albania's tourism industry has demonstrated remarkable resiliency. Many factors contributed to the quick recovery in 2021 including the early lifting of travel and quarantine restrictions in June 2020, the quite less strict COVID-19 regulations, the expansion of air connectivity (24 new routes were added), and the rise of information services delivered via digital platforms (Booking, Airbnb) (UNDP, 2022). The dependence of the nation on local tourism and its accessibility by automobile from nearby countries are factors that have an impact on the recovery during and after the pandemic. Albania was recognized by UNWTO as the third-least afflicted country in the world and the least affected country in Europe by the pandemic, with a decline in foreign tourists of only -11% between 2019 and 2021 (UNDP, 2022).

In addition, Albania experienced a very solid development in terms of foreign visitor expenditure (tourist exports), rising +32% from January to June 2019 and securing the fourth position globally (UNDP, 2022). Forecasts indicate that both domestic and foreign tourism will bring in approximately 3.6 billion euros in revenue in 2022, with exports accounting for about 2.6 billion euros (internal tourism is assumed to be at 2019 levels in this calculation) (UNDP, 2022).
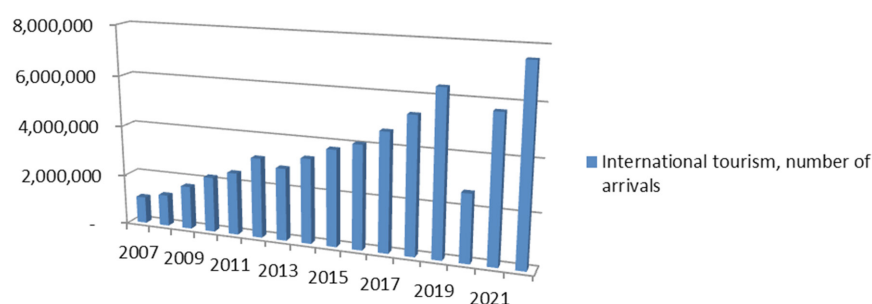


**Figure 1.** Number of arrivals, Albania
**Source:** World Bank, n.d.



**Figure 2.** Receipts, Albania
**Source:** World Bank, n.d.

From the graphic presentation above, foreign citizens who entered Albania in the 12 months of 2021, compared to the same period of 2020 and 2019, noticed that there was a significant increase compared to 2020, but continued a moderate decrease, compared to 2019 (World Bank, n.d.). COVID-19 created a catastrophic situation in 2020 in the tourism sector by reducing the number of tourists by 59% and tourism revenues by 49% (UNDP, 2022).

The table below shows the type of travel of foreign citizens throughout the year 2022, compared to the same data from the previous three years:

**Table 2.** Number of arrivals by air/sea/land

| Description | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|
| | Foreign citizens Arrivals | Foreign citizens Arrivals | Foreign citizens Arrivals | Foreign citizens Arrivals |
| **Total** | **6,406,038** | **2,657,818** | **5,688,649** | **7,543,817** |
| By air | 783,863 | 269,801 | 764,683 | 1,448,412 |
| By sea | 468,364 | 64,079 | 205,852 | 407,336 |
| By land | 5,153,811 | 2,323,938 | 4,718,114 | 5,688,038 |

**Source:** Tourism Bulletin, 2021, 2022

Regarding the ratio of the mode of transport chosen by foreign visitors, to enter Albania during 2022 (Tourism Bulletin, 2022), with the number of total arrivals of foreign visitors, expressed in%, is as follows:
i.      75.4% of foreigners choose the land route to enter Albania;
ii.     19.2% of foreigners enter the Albanian border by air;
iii.    5.4% of entries are made by sea transport.

To be underlined is the fact that there is a significant increase of 89% by air transport in 2022 (Tourism Bulletin, 2022). Below is the table of foreign visitors according to the purpose of their visit, who declared at our border points:

Table 3. Number of arrivals (reason)

| Description | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|
| **Arrivals of foreign citizens** | 6,406,038 | 2,657,818 | 5,688,649 | 7,543,817 |
| **I. Personal** | 6,304,845 | 2,542,494 | 5,588,400 | 7,437,477 |
| 1. Holidays, visit to relatives, etc. | 6,094,889 | 2,457,446 | 5,411,591 | 7,067,487 |
| 2. Health treatment | 658 | 1,437 | 1,504 | 2,392 |
| 3. Religious | 794 | 326 | 488 | 495 |
| 4.Tranzit | 208,504 | 83,285 | 174,817 | 367,103 |
| **II. Business and professional** | 101,193 | 115,324 | 100,249 | 106,340 |

**Source:** Tourism Bulletin, 2021, 2022

Compared to 2021, we have an increase of 33% more foreign tourists (Tourism Bulletin, 2022). Also, all data are with a positive increase compared to 2019 (Tourism Bulletin, 2022). Kosovo* citizens are the largest group of arrivals in Albania and compared to 2019 there is an increase of 17.5% (Tourism Bulletin, 2022). During 2022, from the countries that have the highest inflows of citizens to Albania, Spain has had the largest increase with 3.6 times and England with 85.9%, compared to the same period of 2021 (Tourism Bulletin, 2022).

Table 4. Table of arrivals by citizenship

| Country | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|
| Kosovo* | 2,246,540 | 1,179,667 | 2,640,447 | 2,639,462 |
| North Macedonia | 753,533 | 350,135 | 560,213 | 678,412 |
| Greece | 596,884 | 188,445 | 276,915 | 484,167 |
| Italy | 467,745 | 447,745 | 354,370 | 610,578 |
| England | 133,175 | 48,402 | 89,624 | 166,599 |
| Montenegro | 366,817 | 164,233 | 319,770 | 441,625 |
| Poland | 132,403 | 19,404 | 112,223 | 168,022 |
| USA | 119,179 | 19,570 | 95,377 | 138,079 |
| Spain | 28,750 | 2,801 | 12,567 | 45,235 |
| Germany | 165,703 | 34,461 | 119,009 | 187,664 |
| Switzerland | 64,870 | 13,389 | 57,011 | 65,159 |
| Other | 1,330,439 | 189,566 | 1,051,123 | 1,918,815 |

* Kosovo – under the UN Resolution 1244.

**Source:** Tourism Bulletin, 2021, 2022

In 2022 tourists from Kosovo* accounted for the largest number of visitors (35%), North Macedonia accounted for the second largest number of visitors (9%), followed by Italy (8%), Montenegro and Greece (6%), and UK (2%) (Tourism Bulletin, 2022). The rest came from a variety of countries across the world and compared to 2019 there is an increase of 44% (Tourism Bulletin, 2022).

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*       Under the UN Resolution 1244.

According to the Tourism Statistical Bulletin of August 2023, in the period January-August 2023, there is an increase in the number of arrivals by 27% compared to the period January-August 2022 (Tourism Bulletin, 2023). The positive trend of increasing arrivals by air continues and Kosovars* remain the largest group of arrivals in Albania (Tourism Bulletin, 2023). It is worth emphasizing the fact that Italy remains the third largest group of arrivals in Albania and there is a 50% increase compared to the period January-August 2022 (Tourism Bulletin, 2023). There is also an increase of over 100% in arrivals from countries such as Norway or Finland (Tourism Bulletin, 2023).

## 4.    RESULTS - SWOT MATRIX AND STRATEGY FORMULATION

Based on the results of interviews with professionals of the industry and quadruple helix stakeholders from public institutions (at the level of cities, regions & national), private organizations (start-ups, SMEs, corporations), as well as academia (researchers, universities) and civil society, below is a summary of collected data.

**Table 5.** Albania's tourism SWOT matrix

| SWOT | *Opportunities*<br>• Growing preferences for "Experience" tourism<br>• Growing regional cooperation through promotional platforms<br>• Immigrants as an opportunity for a sustainable market and the growth of foreign tourism<br>• World-famous personalities as ambassadors for the promotion of Albania as a tourist destination<br>• Favorable atmospheric conditions for the use of photovoltaic panels | *Threats*<br>• High competition in the region<br>• Limited approach for entrepreneurship<br>• Non-favorable policy for supporting small and medium-sized businesses with a tourism destination<br>• Emigration as a threat to the sustainable labor force |
|---|---|---|
| *Strength*<br>• Geographic position<br>• History and tradition of hospitality<br>• Heritage and cultural diversity<br>• Natural resources<br>• Culinary and fresh raw materials for AGRO tourism<br>• Competitive prices<br>• Attention and commitment from the government (destination marketing) | **SO Strategy** | **ST Strategy** |
| *Weakness*<br>• Weak infrastructure towards destinations<br>  - Ports & Airports<br>  - Outdated road network, with low capacity and in some cases missing.<br>• Informality and lack of standardization<br>• Lack of "Blue Flag" beaches<br>• Lack of capacity for waste processing<br>• Digitization at low levels and lack of accurate statistics<br>• Lack of culinary, historical and "storytelling" guides<br>• Lack of Albanian food brand<br>• Lack of destination branding<br>• Lack of accommodation capacities<br>• The problem of properties<br>• Modern construction without respecting ancient buildings<br>• Lower Business-Government-Academy cooperation<br>• Unqualified staff<br>• Education Curricula not in line with market and industry needs | **WO Strategy** | **WT Strategy** |

**Source:** Own research

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*    Under the UN Resolution 1244.

## 5.   CONCLUSION

The SWOT analysis is an early step in the strategic planning process that helps planners in defining their goals and choosing how best to allocate resources to pursue these plans, as we discussed in the literature study. Defining the problem is a crucial step in developing a plan. It means the chosen elements should form a strong basis for the strategic recommendations. Determining both external and internal factors was, thereby, the main goal of this article. The fundamental framework for examining the decision-making process and formulating strategies is all that conventional SWOT analysis offers. In the conventional SWOT analysis, the significance of the SWOT variables is not determined and assessed analytically.

We may conclude from the extensive SWOT analysis of Albania's tourist industry that a variety of internal (weaknesses) and external (threats) factors need to be taken into account when formulating strategic alternatives. On the other hand, given that the growth of tourism has negatives as well, the strengths and strategic capabilities should be used with a viewpoint toward sustainable development.

Based on input gathered from interviews with all industry stakeholders, we can identify the following as the main challenges to achieving the strategic objectives of Albanian tourist development: Formulating an Albanian tourism development plan; education of all employees, including management, in the tourism industry; preservation, implementation, and ongoing respect of strict environmental regulations, as well as a long-term, sustainable assessment of the tourism potential; the development of transportation infrastructure and the best possible planning of transportation in support of tourism; creation of a comprehensive and integrated offer at a travel destination; Raising the standard of all accommodations and modifying the classification criteria to align with global quality benchmarks; the continual entry of well-known worldwide hotel "brands" into the Albanian market; a more effective distribution and application of contemporary trends in communication and marketing. Thus, tourism businesses must continuously monitor, review and evaluate tourism performance and management strategies to ensure the long-term sustainability of tourism in the destination.

To create a sustainable tourist development vision for Albania, it is essential to prioritize the factors that influence (SWOT) in order of relevance, concentrating on those that will lead to the highest and most consistent profits. This is also the reason why this paper does not present any strategic solutions for the growth of Albanian tourism. As a result, it could be worthwhile to deepen the research for the most important factors, applying quantitative techniques to quantify the results of SWOT analysis, to evaluate factor prioritization.

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# Organizational Factors, Factors of Innovation in Croatia's Tourist Offer

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**Abstract:** *Tourism represents an important component of economic development in Croatia. The competitiveness of Croatia as a tourist destination largely depends on the level of quality of its tourism product in relation to key success factors. The attractiveness and diversity of the offers in tourism stand out as significant factors in the quality of the tourist products of Croatia. Hospitality and tourism, of which the hotel industry is an integral part, today represent significant activity in the global framework. It is this activity that provides employment and generates significant income, creating a large part of the gross domestic product (GDP) in the economies of tourism-oriented countries and a significant multiplier effect. The quality of the hotel offer is, in part, determined by the hotel's ability to monitor, adopt, and implement innovative tourist products, services, and solutions for its guests and other important stakeholders. The ability of tourism companies today lies in the implementation and increasing utilization of the advantages of innovation, which thus becomes a decisive factor in the survival of tourism companies in today's turbulent and unstable business environment. Today, tourism companies are forced to be innovative in order to survive in a changing business environment. Innovativeness can be defined as the degree to which an individual, compared to others, adopts novelties. From the point of view of tourism organizations, innovation represents openness to new ideas that are part of their culture. The innovativeness of tourist organizations, and therefore tourism, stems from the ability of tourist organizations to continuously transform knowledge and ideas into new tourism products, processes, and systems in order to ensure benefits for stakeholders. Understanding the innovation process is possible through the explanation of the linear and interactive models. In the linear model, the innovation chain starts with formal research and development activities, which are followed by applied research and product development. The next step after the development of a new tourist product is its commercialization. However, the innovative process most often does not have such a beginning, which is why an interactive model provides a better explanation, according to which there is no general order for how innovation occurs. Implementing change management strategies and continuously introducing innovations are crucial activities in hotel management. These efforts are essential not only for driving the hotel's growth and development but also for ensuring its long-term survival. According to the above, the goal of the research is to determine the degree of transformational and transactional leadership, dimensions of corporate culture, and dimensions of corporate learning that contribute to innovations in the hotel, as well as to determine to what extent innovations affect the creation of value for hotel guests.*

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## 1. INTRODUCTION

The tourism sector of Croatia is influenced by various factors that contribute to innovation in its tourist offer. According to Kostadinović and Stanković (2021), preliminary results suggest that Croatian hotels can be portrayed as only moderately innovative with different innovation activities according to the type and newness of innovation. Parallels are drawn to other research carried out in countries such as Spain and Austria to benchmark the innovation activity of Croatian hotels. Recommendations and guidelines for hotel practice and regulatory activities are based on empirical results (Kostadinović & Stanković, 2021). Innovation in the Croatian tourism industry is inseparably connected to newness, whereby new combinations may result in innovations encompassing product innovation, business process innovation, information management innovations, management innovations, and institutional innovations. These innovations are crucial for making the tourism product unique, authentic, and appealing to tourists in a competitive market. Innovations aimed at enhancing customer experiences and satisfaction play a significant role in differentiating Croatia's tourism offerings. Furthermore, the strong emphasis on innovations and changes in tourist organizations in Croatia over the past decade has led to behaviors such as risk-taking, proactivity, and the implementation of innovative products and services. These behaviors are pivotal in realizing the competitive advantage of organizations and meeting the evolving demands of tourists in the changing market conditions. The ability to create innovation is a measure of success in the tourism sector, and it plays a vital role in enhancing the overall value proposition for tourists.

In the world of tourism, innovation performs a critical function in improving the competitiveness and beauty of visitor destinations. Several factors have been identified in the literature that contribute to innovation in the tourist provide. Transformational leadership, a leadership fashion that evokes exchange and encourages innovation, has been shown to have a fantastic effect on organizational innovation in the tourism industry (Alrowwad & Abualoush, 2020). Organizational studying is another key aspect that affects innovation in the tourism zone. By fostering a culture of non-stop studying and knowledge sharing, agencies are better equipped to evolve to changing marketplace needs and introduce innovative tourism services and products (Obeso et al., 2020). Teamwork efficacy has additionally been identified as a sizable motive force of innovation within the vacationer provide. Effective teamwork, characterised by using collaboration, know-how sharing, and shared dreams, fosters a conducive environment for producing and implementing revolutionary ideas within the tourism enterprise (Darwish et al., 2020). Additionally, the concept of energizing organizations to gain knowledge of procedures has emerged as an essential aspect in promoting innovation within corporations imparting tourism services. By actively enticing personnel within the getting-to-know manner, corporations can beautify their capacity for innovation and increase unique services that appeal to tourists (Ping et al., 2018). Furthermore, the overall performance of the enterprise itself can act as a motive force and a final result of innovation within the vacationer provide. Organizational overall performance metrics, together with profitability, market growth, product-service innovation, and business enterprise recognition, can replicate the fulfillment of progressive initiatives applied inside tourism organizations (Mahdikhani & Yazdani, 2020). In the end, the literature highlights the intertwined nature of things influencing innovation inside the visitor offer, encompassing leadership patterns, organizational studying practices, teamwork efficacy, and overall organizational performance. By expertise and leveraging these elements, tourism agencies can function as revolutionary and competitive gamers in the dynamic tourism enterprise.

## 2.    OVERVIEW OF PREVIOUS RESEARCH

Organizational learning plays a key role in fostering innovation in organizations. This has been confirmed by numerous studies by Calantone et al. (2002), Mavondo et al. (2005), Salavou (2005), Aragon-Correa et al. (2007), Jiménez-Jiménez and Sanz-Valle (2011), and Fraj et al. (2015). Organizational learning is considered a factor that precedes the innovation of a hotel company. The hotel company's ability to learn, adapt to new information, and acquire new knowledge directly affects its ability to generate innovation. Organizational learning, according to Fraj et al. (2015), also affects organizational performance. Through continuous learning, organizations can improve their processes, adapt to changes in the market, and achieve better business results. Ries and Trout (1981) emphasize that innovation is a form of learning. This concept indicates that organizations, through the process of innovation, acquire new experiences, adapt to the environment, and grow as entities. Argyris and Schön (1978) believe that organizational learning directly contributes to the improvement of strategies and their implementation in practice; Senge (2006) promotes continuous learning, teamwork and system development within organizations; Garvin (2000) identifies key elements such as generic abilities and continuity in learning as fundamental elements for the organization of organizational learning; Fisher (2003); In his work, Flecher (2010) connects employee education and training and employee development with organizational learning in the hotel industry; Berkun (2007) deals with the management of human resources in the hotel industry, particularly investigating the impact of human resources on organizational learning and innovation in hotels; Creativity and innovation help to solve security crises in tourism through the development of innovative security measures, diversification of the tourism offer, and flexibility of business strategies (Berkun, 2007; Boyd & Goldenberg, 2015; Carayannis & McDonald, 2013; Cropley, 2018; De Bono, 1999; De Brabandere & Iny, 2015; Elior, 2000).

## 3.    INTERRELATIONSHIPS BETWEEN TRANSFORMATIONAL AND TRANSACTIONAL LEADERSHIP, ORGANIZATIONAL CLIMATE, ORGANIZATIONAL LEARNING, INNOVATION AND VALUE FOR TOURISTS

The interrelationships between transformational and transactional leadership, organizational climate, organizational learning, innovation, and value for tourists are critical aspects that contribute to the success and competitiveness of tourism enterprises. Transformational leadership, characterized by inspiring and motivating followers, has been linked to fostering a creative environment and stimulating innovative behavior within organizations. Studies suggest that transformational leadership influences employees to think beyond the status quo, encourages intellectual stimulation, and motivates individuals to contribute to organizational innovation (Shah et al., 2020; Kostadinović & Stanković, 2021). In contrast, transactional leadership focuses on exchange processes between leaders and followers, providing resources, rewards, and guidance for task execution. Transactional leadership may not directly foster innovation, as it emphasizes compliance and task completion rather than personal growth and creativity (Shah et al., 2020; Kostadinović & Stanković, 2021). Organizational climate plays a crucial role in shaping the work environment and influencing employee behaviors. A positive organizational climate, nurtured by transformational leadership attributes, can trigger innovation by fostering a culture of trust, support, and creative thinking. This, in turn, can enhance organizational learning and promote a culture of continuous improvement and adaptation to dynamic changes in the competitive tourism market. Organizational learning is essential for enhancing the capabilities and knowledge base of employees within tourism enterprises. By facilitating the acquisition of new knowledge, skills, and behaviors, organizational learning enables adaptability, efficiency, and innovation, thus positioning the organization for long-term success.

Innovation, defined as the process of creating new value for consumers and stakeholders, is a key driver of competitiveness in the tourism industry (Pivcevic & Pranicevic, 2012). Transformational leadership, through its emphasis on creativity and intellectual stimulation, is linked to inspiring innovation within organizations. (Jovičić Vuković et al., 2018). Organizational learning plays a significant role in facilitating innovative processes by encouraging knowledge creation, sharing, and application in developing new products, services, and experiences for tourists. Ultimately, the interplay between transformational and transactional leadership, organizational climate, organizational learning, and innovation directly impacts the creation of value for tourists (Simoncesка, 2012). By fostering a culture of continuous learning, encouraging innovation through effective leadership practices, and shaping a positive organizational climate, tourism enterprises can enhance their value proposition to tourists, leading to increased satisfaction, loyalty, and competitive advantage in the dynamic tourism market (Yulianeu et al., 2021).

## 4. RESEARCH METHODOLOGY

The ability of tourism companies to implement the benefits of innovation is a decisive factor in the survival of tourism companies in today's turbulent and unstable business environment. Today, tourism companies are forced to be innovative in order to survive in a changing business environment. Innovativeness can be defined as the degree to which an individual, compared to others, adopts novelties. From the point of view of tourism organizations, innovation represents openness to new ideas that are part of their culture. The innovativeness of tourist organizations, and therefore tourism, stems from the ability of tourist organizations to continuously transform knowledge and ideas into new tourism products, processes, and systems in order to ensure benefits for stakeholders. The innovative capacities of tourism organizations can be defined as the continuous improvement of the overall capabilities and resources that tourism companies possess in order to explore and use opportunities for the development of new tourism products and services that would meet the needs of increasingly demanding consumers in tourism. The innovative capacity of tourism enterprises is today defined as an integrative process of applying the collective knowledge, skills, and resources of tourism enterprises in order to ensure technological (innovation of tourism products and services, production) and non-technological (management, marketing, market). Innovation consists of the competencies of organizing and implementing research and development in the direction of creating new tourist products, new technologies, and new markets to meet the needs of consumers in tourism.

Tourism innovations can be determined according to the needs of guests, where kitchen innovations, room innovations, Internet innovations, innovations related to services that include the stay of pets in facilities or the introduction and development of a special form of selective tourism, etc. are distinguished. In the hotel industry, works often focus on certain aspects of hotel service quality, such as gastronomy, animation, and wellness facilities. Process innovations were analyzed by the works of the project manager, whose focus is the impact of technology in order to achieve various benefits that can be expressed through higher productivity, higher income of the tourist company and/or through the development of the tourist destination. Employee-related innovations include finding new ways to organize, direct and retain staff, increase workplace satisfaction and foster knowledge and competence. Thus, the goal of this paper is to investigate the application of human resource management instruments in the hotel industry and to point out the importance of teamwork and knowledge sharing in order to encourage the development of innovations. Furthermore, the goal is to show that innovative hotels achieve lower costs and high-quality results.

The subject of this paper is an examination of the current state and level of hotel innovation in Croatia, hotel innovation in Istria, in relation to Dalmatia or in relation to continental Croatia. In today's business environment, the hotel's ability to provide innovative solutions to its guests is the basis for creating and maintaining a competitive advantage in the global tourism market. Investigating the state of innovation is one of the key means of obtaining information on which business segments it is necessary to make certain improvements to ensure the optimal quality of the hotel product and achieve the best possible business result. The goal of the research, in accordance with the above, is to determine the influence of certain organizational factors that are key to encouraging innovation in hotels. Particularly significant organizational factors that influence hotel innovation, and which are also the subject of research, are transformational and transactional leadership style, organizational climate dimensions and organizational learning. The role of the leader in the formulation and modification of the organizational climate is of vital importance for the hotel business. The transformational leadership style in hotel companies is a factor in creating a climate that encourages change, reduces employee resistance and influences employees to feel significant for the changes that are taking place in hotels, motivating them to better engagement and innovative behavior. Unlike transformational leadership, transactional leadership does not take into account the needs of employees and their personal development and is based on the concept of exchange between leaders and followers, which is why it can negatively affect creativity, which is key to innovation. Organizational innovation results from the organization's ability to continuously transform knowledge and ideas into new products and services, processes and systems in order to ensure benefits for stakeholders.

Innovations in the hotel industry are influenced by transformational and transactional leadership, dimensions of organizational climate and dimensions of organizational learning. Given that it is possible to isolate and measure selected organizational factors, three affirmative special hypotheses were derived from the general hypothesis:

**Hypothesis H1:** Transformational and transactional leadership are positively correlated with the amount of innovation introduced.

**Hypothesis H2:** There is a positive relationship between transformational leadership, transactional leadership and organizational learning in the hotel sector.

**Hypothesis H3:** Innovations affect the creation of value for hotel guests and the perception of added value by guests.

For this work, quantitative research was conducted using the method of surveying employees in high managerial positions in hotels in the Republic of Croatia. The survey asked groups of questions related to organizational learning, propensity for innovation, and transformational and transactional leadership. The questionnaire was distributed to 818 hotels in the Republic of Croatia, where there are 38 hotels in the two-star category, or 4.65%; 291 hotels with three stars, which is 35.57%; 364 hotels with four stars, or 44.50% of hotels; 56 hotels with five stars, or 6.85%; 30 hotels are cultural heritage hotels; 2 diffuse hotels; 31 integral hotels; and 6 hotels of a special standard.

According to data from the State Statistical Office of the Republic of Croatia, 29,800 people were employed in the hotel industry in 2023. The sample consisted of 618 employees in hotels with two, three, four, and five stars. The recommended sample size, where the margin of error

is 5%, the confidence level is 95%, and the population variance is 50%, for a population size of 9,682 respondents in management positions is 480 respondents, making a sample of 618 respondents satisfactory.

**Table 1.** Descriptive statistics of Innovations in the hotel

| | N | Arithmetic middle | SD | Minimum – maximum | Cronbach Alpha |
|---|---|---|---|---|---|
| Hotel employees solve problems for guests innovatively and differently. | 618 | 4,31 | 0,9 | 1 – 5 | |
| Hotel employees offer new solutions and ideas | 618 | 4,20 | 0,9 | 1 – 5 | |
| Our hotel adopts new technologies. | 618 | 4,13 | 0,7 | 1 – 5 | |
| We constantly compare our business processes with world standards in the hotel industry. | 618 | 4,11 | 0,9 | 1 – 5 | |
| We use new technologies to improve the quality of the hotel. | 618 | 4,10 | 0,6 | 1 – 5 | |
| Our hotel invests significant resources in the development of new work methods. | 618 | 4,07 | 0,8 | 1 – 5 | 0,974 |
| The hotel continuously conducts training on the adoption of new technologies. | 618 | 4,06 | 0,9 | 1 – 5 | |
| Our hotel introduces a large number of new products and/or services. | 618 | 4,05 | 0,8 | 1 – 5 | |
| Hotel management is constantly looking for new methods to improve management practices. | 618 | 4,01 | 0,8 | 1 – 5 | |
| Our hotel encourages employees to take the initiative | 618 | 3,25 | 0,7 | 1 – 5 | |
| Our competition uses our management system as a standard. | 618 | 3,62 | 0,7 | 1 – 5 | |

**Source:** Own research

Reliability was determined by the standard method of calculating the reliability of the scale using the Cronbach alpha coefficient, the value of which must be above 0.6 in reconnaissance research, and the item-to-total correlation indicator, which should be above 0.5, and all inter-item correlations within the factor are greater than 0.3 (Hair et al., 2011, p. 125). The corresponding Cronbach alpha coefficient shown in Table 1 indicates extremely high reliability in terms of the reliability of the innovativeness measurement scale. Innovations in hotels contribute to the development of more qualified, motivated, and satisfied employees, which results in an improved guest experience and better business results. Respondents gave the following ratings to the questions asked: „*Hotel employees solve problems for guests innovatively and differently*" the arithmetic mean amounts to: 4.31; „*Hotel employees offer new solutions and ideas*" the arithmetic mean amounts to: 4.20. „Our hotel adopts new technologies" the arithmetic mean amounts to: 4.13. „We constantly compare our business processes with world standards in the hotel industry" is 4.10. Encouraging a culture of constant learning and improvement enables hotels to be more adaptable to changes in the industry, as indicated by the results of the obtained research and the fact that the management of the hotel industry is aware of the role and importance of innovation.

The Kolmogorov-Smirnov test (KS test) is a statistical test shown in Table 2 that is used to determine the similarity between the empirical data distribution and the theoretical distribution. This test helps verify the assumption about the distribution of data when it comes to organizational learning. The basic idea of the Kolmogorov-Smirnov test is to compare the cumulative

distribution functions (CDF) of the empirical data set with the theoretical distribution we are examining. The statistical measure D, known as the Kolmogorov-Smirnov statistic, represents the largest absolute difference between two CDFs.

Organizational learning in hotels is critical to success in the hospitality industry. Given the dynamic environment, competition and changes in guest preferences, hotels must continuously adapt and improve. The results shown in Table 2 bring several essential elements of organizational learning: awareness of the importance of education, continuous education, teamwork and cooperation. The arithmetic means of the displayed particles and their standard deviations amount to: „The ability to learn and acquire new knowledge is key to our hotel's competitive advantage" (x=3,856; SD=0.861); " In our hotel, they believe that learning is an investment, not an expense" (x=3.323, SD=0.793), „Employees are not afraid to think critically about the assumptions they have regarding hotel guests" (x=3.915, SD=0.995), „The employees of our hotel have the opportunity to talk to each other about new programs, ideas and activities that can be useful for business" (x=3.008, SD=0.828), „Managers constantly emphasize the importance of knowledge exchange in our hotel" (x=3.725, SD=0.817).

**Table 2.** Kolgomor test Organizational learning

| Results | N | Min | Max | Average | Standard deviation | Coefficient of variation | The Smirnov „normality" Statistics | Kolmogorov test for P value |
|---|---|---|---|---|---|---|---|---|
| The ability to learn and acquire new knowledge is key to our hotel's competitive advantage. | 618 | 1.00 | 5.00 | 3.856 | 0.861 | 26.432 | 0.250 | 0.000 |
| In our hotel, they believe that learning is an investment, not an expense. | 618 | 1.00 | 5.00 | 3.323 | 0.793 | 27.138 | 0.299 | 0.000 |
| Employees are not afraid to think critically about the assumptions they have regarding hotel guests. | 618 | 1.00 | 5.00 | 3.915 | 0.995 | 29.147 | 0.200 | 0.000 |
| The employees of our hotel have the opportunity to talk to each other about new programs, ideas and activities that can be useful for business. | 618 | 1.00 | 5.00 | 3.008 | 0.828 | 25.041 | 0.299 | 0.000 |
| Managers constantly emphasize the importance of knowledge exchange in our hotel. | 618 | 1.00 | 5.00 | 3.725 | 0.817 | 16.031 | 0.151 | 0.000 |

**Source:** Own research

**Table 3.** Statistical significance of the structural coefficient between organizational learning and the creation of a positive organizational climate

| Hypothesis | The direction of the relation | Standard estimate (beta coefficient) | Standard error | t value | p value | Confirmed hypothesis |
|---|---|---|---|---|---|---|
| H1 | Transformational and transactional leadership→ innovation | 0.011 | 0.085 | 0.119 | 0.789 | YES |
| H2 | Transformational leadership, transactional leadership→ organizational learning | 0.216 | 0-069 | 3.046 | 0.002** | YES |
| H3 | Innovations→added value by guests | 0.144 | 0.078 | 1.825 | 0.051* | YES |

**Note:** * Indicates p<0.1; ** Indicates p<0.005

**Source:** Own research

Understanding transformational and transactional leadership, innovation, organizational learning, and creating added value for guests is critical in the hotel industry to achieve success and long-term competitive advantage. Transformational leaders in hotels encourage employees to think outside the box, drive innovation in guest services, and develop a positive corporate culture that supports continuous learning and improvement. In the hotel sector, transactional leadership can be manifested through a system of rewarding employees for achieving goals, which can encourage workers to provide excellent service to guests. Implementing new technology (like a smartphone app for speedy check-in and check-out), coming up with novel service ideas (like customized offers), or adopting sustainable methods (like using eco-friendly materials) are examples of innovations. Hotels need to develop a culture of organizational learning where employees have access to training and workshops and are encouraged to share knowledge. This can result in better adaptations to changes in the market and innovations. Added value can come from personalized services, fast and efficient communication, innovative solutions that facilitate guests' stays, and providing unique experiences that they remember (Table 3).

## 5. CONCLUSION

The state of human resources and the current level of development of the hotel industry in the Republic of Croatia indicate that formal education acquired through education is not enough, which is why it is necessary to encourage different forms of continuous learning, which is the case in a very small number of hotels in the Republic of Croatia. Hotel owners and managers must strive to continuously improve the knowledge, skills, and competences of employees because this is the only way to deliver the expected quality service. The results of this research show solid average values when it comes to the innovativeness of hotels, where there is an opportunity to improve the business process of delivering a high-quality hotel product. Very few hotels in Croatia can boast of radical innovations, especially those related to the implementation of new technology. The reason for this may be financial: a lack of awareness of the benefits of introducing innovations and new technologies. One of the possible reasons is the extremely high seasonality of Croatian tourism, which means a significant overload during the summer months and unequal employment in the tourism sector, which is tried to be solved by seasonal employment, which affects the extremely high turnover of employees. Sustainable tourism and diversification of the tourist offer are the answers to the problem of seasonality, which is impossible without investments in hotel infrastructure and workforce education. Orientation to learning should be the strategic goal of every hotel organization, which implies involving employees in creating the hotel's vision, pointing out the importance of flexibility and openness to changes, and ensuring educational activities in the function of improving employees' competencies, which creates a climate in which employees are satisfied, dedicated to work, and motivated for using new creative solutions and meeting the needs of increasingly demanding and sophisticated hotel guests. The role of management is to improve the exchange of information and coordinate activities directed towards guests. The continuous exchange of knowledge is of particular importance considering the high level of turnover of employees in the hotel industry, considering that in this way the loss of knowledge is prevented when an employee leaves the hotel.

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# Glamping as a Novel Trend in Tourism in Vojvodina

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**Abstract:** *This study investigates tourism trends in Vojvodina, focusing on the rising popularity of glamping. Vojvodina attracts visitors with its natural beauty and cultural richness. The term "glamping" combines the luxuries of modern living with the immersive experience of camping, creating a harmonious blend of comfort and nature. The research examines how glamping complements Vojvodina's offerings as a new special interest in tourism and a new type of accommodation. The study highlights glamping's alignment with sustainability and local prosperity. This analysis points out the current challenges in glamping tourism development. It provides a roadmap for Vojvodina to adapt to evolving tourism preferences, conserve its natural resources, and foster a community-oriented tourism industry.*

## 1.  INTRODUCTION

The global tourism industry is undergoing profound changes, driven by technological advancements and changes in the demands of tourists, a growing emphasis on sustainable practices, and the increasing demand for authentic experiences.

The study explores the evolving landscape of tourism and identifies potential for its development in the Vojvodina region (Serbia) with a specific focus on the rising trend of glamping. With an array of untouched landscapes and culturally significant sites, Vojvodina is well-positioned to capitalize on this trend.

The methodology includes cabinet research on glamping as a unique form of tourism. Additionally, the article highlights the importance of Vojvodina as a new and undiscovered destination suitable for glamping development. It also discusses specific locations and offerings related to glamping tourism in Vojvodina, presenting them as pioneering ventures in Serbia.

The article discusses how glamping not only caters to the desires of contemporary travelers but also aligns with sustainable practices, promoting environmental conservation and contributing to the prosperity of local communities.

## 2.  GLAMPING TOURISM

Nature and protected natural areas represent modern tourism's primary motives and the most significant destinations (Filipe et al., 2018). Today, there is increasing emphasis on the protection of nature in the context of tourism as a consequence of the increasingly strong relationship between tourism and protected natural areas (Cvetković et al., 2023).

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Nature and glamping are interconnected and interdependent. Glamping is based on eco-tourism and putting the traveler in contact with nature. Nature is the base for the development of glamping, while glamping presents a new type of accommodation with no negative impact on the environment.

Glamping can be defined from different perspectives: as a new trend in tourism, as a distinct form of tourism, or as an innovative type of accommodation. Glamping tourism, as an innovative type of tourism, is a part of camping tourism.

Camping tourism is a type of nature-based special interest tourism. Its essence stems from its lodging options' adaptable, impermanent, and movable qualities - like tents and mobile homes and its intrinsic bond with the natural world (Blichfeldt & Mikkelsen, 2014; Mikulić et al., 2017). Currently, camping tourism deals with the new demands of tourists wishing to have more comfortable and luxurious options. "It is no longer enough just to provide washing and cooking facilities. The demand for wellness and sports facilities, once found primarily in the hotel industry, is now increasing at camping sites" (Sommer, 2020). This trend and a new segment in the camping tourism industry is called "glamping" - a combination of the words "glamorous" and "camping," where comfort and luxury in nature are the crucial attributes - glamping combines an outdoor experience with the comfort of a hotel.

Glamping means glamorous camping, that is, camping, sleeping, or living temporarily in the middle of nature and the outdoors without leaving aside the amenities or comfort of a luxury hotel (Vrtodušić Hrgović et al., 2018). Thus, glamping emerges as a type of nature tourism that allows tourists to be "in direct contact with nature without sacrificing their comfort" (Brochado & Pereira, 2017). The term glamping combines the luxuries of modern living with the immersive experience of camping, creating a harmonious blend of comfort and nature (Jokkala, 2023).

The crisis caused by the Covid-19 pandemic has impacted many traditional hospitality offerings, such as hotels and restaurants, while camping and glamping products witnessed explosive demand due to their ability to provide socially distant, hygienic, and secluded getaways far from urban areas (Lu et al., 2022). For example, results of a study in the US and Canada (Craig & Karabas, 2021) show that leisure travelers have plans to take glamping trips (45.9%) after COVID-19 when permissible than hotel/resort trips (24.7%).

According to Grand View Research, Inc. (2024), the global glamping market size was worth $2.35 billion in 2021 and $2.57 in 2022. Glamping Global Market Report (2022) indicates that the glamping market size will reach $4.23 billion in 2026. In Europe, France is a key country that promotes glamping, with a total of 8000 campsites. The main target groups for glamping are Millennials or Gen Z.

The top choices for glamping accommodations are tents, tipis, caravans, treehouses, pods, tiny homes, and cabins. Glamping tents include safari tents, bell tents, and dome tents. Tipis provide a rustic experience, often made from natural materials like wool and cotton. Caravans offer the comforts of home on the go, with amenities like kitchens and living areas. Luxury treehouses provide a tranquil retreat amidst lush environments. Pods and domes offer unique and cozy spaces suitable for minimalist getaways. While not strictly glamping, tiny homes embrace similar principles of nature and luxury. Cabins, often rustic and wooden, provide a charming retreat in scenic surroundings, with some variations like cottages offering additional amenities for extended stays.

## 3.  VOJVODINA AS A TOURIST DESTINATION

The Autonomous Province of Vojvodina, as a part of the Republic of Serbia, represents a tourist destination with diverse tourism potentials. Firstly, its tourist-geographical position makes it an appealing destination for tourists. Furthermore, natural attractions provide an ideal foundation for various forms of tourism, thanks to numerous representative examples of attractive natural heritage. Additionally, hydrography, with numerous rivers and lakes, further enriches the tourist offer. Special allure is found in the diversity of cultural heritage, ranging from archaeological sites to monasteries and castles. Cities and villages in Vojvodina are another unavoidable attraction, with the unique ambiance of cities and rural households. Events, especially traditional ones, contribute to the richness of the tourist offer. Due to all the natural and anthropogenic tourist values Vojvodina possesses, the most prevalent forms of tourism in Vojvodina can be identified as cultural tourism, excursion tourism, wine tourism, transit tourism, sports-recreational tourism, rural tourism, eco-tourism, and nautical tourism.

As a geographical tourist cluster, Vojvodina has excellent potential due to its geostrategic position and all other natural resources. These resources are reflected in many protected natural assets that are already part of Vojvodina's ecotourism offer to a greater or lesser extent. With the necessary valorization of existing potentials and resources and a proper marketing management approach, ecotourism in Vojvodina can be a means of very favorable positioning in the international tourist market (Kovačević et al., 2010).

Flora and fauna can be both direct and indirect tourist value. They possess recreational, aesthetic, health, curiosity, relict, endemic, and landmark properties of tourist activities and enable various forms of tourism, so their potential and possibilities of valorization must be comprehensively considered.

Protected natural areas in Vojvodina play a significant role in the development of glamping tourism. In Vojvodina, natural goods under the strict protection regime differ in type and category. On the territory of Vojvodina, there is one national park, numerous nature reserves (11), nature parks (8), nature monuments (166), as well as a particularly important natural rarity (over 300 plant and animal species).

Some of the most important protected nature sites in the Vojvodina region suitable for glamping tourism development are:
- Fruška Gora National Park,
- Gornje podunavlje (the Upper Danube Basin),
- Koviljsko-petrovaradinski rit (the Kovilj-Petrovaradin Marsh),
- Deliblatska peščara (the Deliblato Sands),
- Stari Begej – Carska Bara (Stari Begej – Carska Pond),
- Obedska bara (the Obedska Pond),
- Palić Lake.

## 4.  SELECTIVE FORMS OF TOURISM IN VOJVODINA

Vojvodina, with its diverse offerings, provides visitors with a unique experience through various forms of tourism. Certain forms of tourism such as cultural, rural and wine tourism are already established, but there are also forms of tourism that have the potential for further development,

including sport and recreational, nautical, and event tourism, as well as novel forms of tourism such as sustainable and glamping tourism, which complement existing forms of tourism and accommodation.

Cultural tourism permeates the entire territory of Vojvodina through its rich heritage - various museums, galleries, and historical sites. Cultural assets in Vojvodina are creations of material and spiritual culture of different ethnic groups, unique in Europe and represent the symbol of cultural tourism in Vojvodina (Besermenji & Marković, 2014).

Event tourism is one of the most important forms of cultural tourism. In Vojvodina, events harbor considerable tourism potential. Several have transcended local boundaries (Spasojević et al., 2013), extending their influence across the region and even further afield, exemplified by Exit, the preeminent music festival in Southeastern Europe.

Transit tourism in Vojvodina encompasses travelers passing through this region on their way to other destinations. Transit tourists can be attracted to Vojvodina by making it a convenient destination for breaks during travel between neighboring countries in various accommodation options, from luxury hotels to rural households, allowing them to sample local specialties during their short stays or can enjoy events that happen to coincide with their time passing through the region.

With its natural, built, and human resources, it provides exceptional opportunities for sports and recreational tourism development. In the territory of Vojvodina, there are many forms of sports and recreational tourism. Some of them, such as hunting and equestrian sports, have centuries-old traditions and involve the local population and visitors from abroad. In addition to traditional sports events such as cycling marathons and sports tournaments, Vojvodina also offers opportunities for adventurous activities. Fishing tourists can enjoy numerous ponds and rivers in its territory, while hunting enthusiasts can explore the richness of hunting areas.

Nautical tourism offers the opportunity to go cruising and enjoy water activities. The Danube and Tisa rivers play a crucial role in this type of tourism, providing ideal conditions for navigation, fishing, and various water activities (Štetić et al., 2014). Additionally, natural areas such as the Vojvodina lakes, such as Lake Palić and Lake Ludaš, contribute to nautical activities.

Wine tourism attracts wine and gastronomy enthusiasts to Vojvodina. The Vojvodina region is known for its rich vineyards and tradition of producing high-quality wines. Wine routes lead through picturesque landscapes of wine-growing areas, allowing visitors to explore various wineries and enjoy the diversity of wine varieties.

In Vojvodina, nearly half of the population lives in villages, and the region possesses exceptional natural and anthropogenic resources for the development of all forms of rural tourism. Rural tourism allows visitors to experience authentic rural life with homemade food and traditional activities. Rural tourism in Vojvodina provides visitors with a unique opportunity to experience the authenticity of villages, get acquainted with local culture and gastronomy, and enjoy the natural environment.

Sustainable tourism in Vojvodina is vital to preserving the richness of cultural heritage, natural resources, and the local community. In this sense, glamping as a sustainable form of tourism and a new type of accommodation can complement all the special interests in tourism.

## 5. GLAMPING IN VOJVODINA

In the Tourism Development Strategy of Serbia from 2016 to 2025 (2016), the importance of embracing the experiences and trends of glamping for its inclusion in the accommodation offerings in the Republic of Serbia is emphasized for several reasons:
- The cost of staying in this type of accommodation ranges from 80–460 EUR/day.
- Investments in such accommodations range up to 350 EUR/m2 for the most luxurious setups.
- Given that these are mobile and temporary structures that do not have a significant impact on the environment, complex planning and infrastructure procedures are not necessary for their installation.
- The Republic of Serbia boasts a large number of destinations that are attractive for this type of offering.
- The concept is ideal for promoting and developing tourist areas without major investments in infrastructure and facilities, with a requirement for highly professional logistics management and the provision of quality tourist products and services (suitable areas for implementation include the Danube Basin, Golija, Uvac, Vlasina Lake, Tara, etc.).

In Vojvodina, glamping tourism is gradually gaining popularity as a convenient choice for travelers seeking comfort and untouched surroundings.

Although not as advanced as in other regions, investors and travelers are becoming increasingly interested in this accommodation type.

Several glamping sites in the area currently offer a diverse range of accommodations, from luxurious tents to rustic wooden cabins, but more efforts are needed to expand choices and improve amenities.

Vojvodina's most renowned glamping locations include Fruška Gora, specifically Sremski Karlovci, Zasavica, Bezdan Camp, etc. Glamping tourism in Vojvodina has the potential for growth and significant contributions to the regional tourism industry with the support of neighboring communities, government agencies, and business owners.

Examples of best practice in Vojvodina glamping offer are:
- Lala Vineyard glamping resort - The first glamping resort in Serbia, located in Fruška Gora National Park, between the two largest cities. The excellent location of the resort allows for various outdoor activities, such as walks to the famous monasteries of Fruška Gora, cycling, canoeing or kayaking on the Danube, outdoor picnics, yoga, and excursions to well-known cities like Sremski Karlovci, Petrovaradin Fortress, and Novi Sad.
- Glamping park Vrdnička Kula - Isolated from urban hustle and nestled in the deep, untouched nature, it is located right on the border with the 'Fruška Gora' National Park. Clean air, over 200 sunny days a year, the scent of linden and pine forests surrounding the settlement, and a view of the beautiful nature will provide guests with peace and relaxation for all senses. The ethnic complex is named after the historical structure from the 14th century, Vrdnička kula, which, according to records, was first built during the period when the Romans inhabited this area. The historical site can be reached via a health trail with just a 15-minute leisurely walk.
- Farmhouse Salaš 137 - Salaš 137 in Čenej is a unique place close to Novi Sad that offers the authentic ambiance of a farmhouse and the Vojvodina plain. In addition to accommodation

in the Alt Deutsche style, which in its appearance can compete with the hotels. The farmhouse offers local food and drinks, as well as numerous other facilities, services and activities in nature for all ages.

- Camp Bezdan - Camp Bezdan is located on the bank of the Great Bačka Canal near the Special Nature Reserve "Gornje Podunavlje". The camp offers a stay in nature in tents for two or one person, with a corresponding mat and a sleeping bag. The restaurant, in addition to the standard offer of traditional dishes of this region, also offers the possibility of preparing food that is in accordance with the wishes of the guests. Numerous activities are available to guests, such as catamaran, canoeing, or cycling.

## 6. CONCLUSION

Glamping tourism in Vojvodina has the potential to grow and contribute significantly to the region's tourism economy with the support of neighboring communities, government agencies, and business owners.

Given the natural beauty of the region, rich cultural heritage, and longstanding hospitality, glamping tourism in Vojvodina has ample room for growth and development.

Expanding accommodation options is a key driver for the future growth of glamping tourism in Vojvodina. Innovative concepts such as luxurious domes, water villas, or renovated rural houses can be considered alongside conventional tents and wooden cabins. Vojvodina has the potential to become a renowned glamping destination attracting travelers worldwide through careful planning, investments, and collaboration among all relevant stakeholders.

Glamping tourism in Vojvodina has the potential to be a primary driver of economic growth and rural development with proper planning, municipal support, and investments.

Glamping deeply promotes ecological consciousness and sustainability. This movement advocates for eco-friendly lodging options, embraces principles of circular economy, prioritizes the utilization of sustainable materials in construction, promotes energy efficiency, and seamlessly integrates accommodation spaces into their natural surroundings. Emphasis is placed on minimizing waste and adopting eco-conscious transportation methods, all in pursuit of fostering a harmonious coexistence with the environment (Pop et al., 2024).

In addition to numerous advantages, there are also certain challenges that glamping tourism in Vojvodina may face including:
- Lack of awareness about this form of tourism among potential visitors could hinder guest attraction.
- Insufficient infrastructure at glamping sites, such as access roads and sanitary facilities, may limit the comfort of stay and the overall appeal of accommodations.
- Sustainability poses a challenge, given the need to protect natural resources and ecosystems, requiring careful planning and implementation of ecological practices.

The development of glamping in Vojvodina represents a significant opportunity in terms of expanding the tourist offer and a new experience for tourists, as a factor of nature conservation, but also a catalyst of material and other benefits that it can bring to the local community, the tourist destination, and the improvement of Serbia's tourist offer on the international market. It

is extremely important to educate all relevant stakeholders about the importance and benefits that glamping tourism can provide while ensuring adequate infrastructure, legal regulations, and defining standards in this area.

Based on the above, we can single out key recommendations for the development of glamping in Vojvodina in the future:
- Diversification of accommodation options;
- Improvement of infrastructure;
- Sustainability and environmental preservation;
- Marketing plans development;
- Stakeholder collaboration;
- Local community inclusion and
- All relevant stakeholders' education.

## Acknowledgment

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# Quality Parameters of Online Travel Agencies

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**Abstract:** *An online travel agency (OTA) is a web-based travel agency that allows users to research and book various travel products and services online. Technological development has influenced the quality of existing OTA functions and also created some new ones. This paper analysed the parameters that influence the quality of online travel agencies in terms of basic process performance and basic interactions through the user interface. Three online travel agencies that are currently the most popular worldwide (Booking.com, Airbnb, and Tripadvisor) were selected and analysed qualitatively and quantitatively. Qualitatively analysed and evaluated were: user interface and user experience, booking process, reviews and feedback, search and filtering options, the accuracy of information, payment security, website performance, customer support and collaboration with other services. Google PageSpeed Insights was used to quantitatively measure the performance of these three online travel agencies using five "Lighthouse 10" parameters and three Core Web Vitals for the desktop and mobile versions.*

## 1. INTRODUCTION

The advancement of digital technology has changed the way people organise and book their holidays, and traditional intermediaries such as tour operators and physical travel agencies have lost a significant part of their market share to online travel agencies (OTAs) (Quinby, 2017; Law et al., 2015). The hotel and tourism industry has changed significantly with the growth of the internet and mobile technology (Car & Stifanich, 2020; Vitezić et al., 2015), especially in terms of its distribution networks (Buhalis & Law, 2008). The application of digital technologies to enhance the travel experience and streamline tourism-related goods, services and processes are characteristics of the digital tourism era. The definition of digital tourism is the use of technology to enhance the traveller's experience before, during and after their trip. The goal of digitising tourism and hospitality as an industry is to ensure adaptability and meet user demands by streamlining service delivery procedures in response to customer requests (Verhun et al., 2022). Utilising multiple online distribution channels helps the hospitality industry to reach a wider market and provide customers with convenient access to hotel services and goods, regardless of their location or schedule (Chang et al., 2018). OTAs have emerged to expand the distribution of tourism products and make it easier for potential customers from around the world to reach hotels and improve the company's prospects (Lv et al., 2020; Garcia et al., 2022). In this process, online travel agencies (OTAs) are crucial as they offer consumers the ability to search, rate, and book a variety of travel-related services such as accommodation, transport, vehicle rental, excursions, cruises, and other activities. OTAs are used daily by millions of travellers around the world to organise both business and leisure trips (Expedia group, 2023). In this study, the three most popular OTAs

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(Booking.com, Airbnb and Tripadvisor) were analysed considering 9 parameters: *user interface and user experience, booking process, reviews and feedback, search and filtering options, accuracy of information, payment security, website performance, customer support, and collaboration with other services* (in the form of application programming interfaces - APIs). All parameters were analysed qualitatively and the performance of the website quantitatively using the "Lighthouse 10" score and Core Web Vitals metrics (Google Lighthouse 10, 2024; Web Vitals, 2024). After the introduction, the section Theoretical background and related work describes the topic and cites current data from the real sector and the scientific field. The Methodology section describes all evaluation parameters and the Results and Discussion section presents the summarised results in tabular and graphical form together with the discussion.

## 2.    THEORETICAL BACKGROUND AND RELATED WORK

The leading online travel agencies (OTAs) drastically increased their revenue in 2022 after a sharp decline due to the coronavirus (COVID-19) pandemic. Nevertheless, only Booking Holdings and Airbnb reported an increase in revenue in 2022 compared to 2019. Booking Holdings achieved the highest total revenue in 2022 with over 17 billion dollars in revenue, both before and after the impact of the health problem. This year, Expedia Group followed with a turnover of over 11.7 billion dollars.

**Table 1.** Revenue of leading OTAs worldwide 2019-2022

| OTA | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|
| Booking Holdings | 15,066 | 6,796 | 10,958 | 17,090 |
| Expedia Group | 12,067 | 5,199 | 8,598 | 11,667 |
| Airbnb | 4,805 | 3,378 | 5,992 | 8,399 |
| Trip.com Group | 5,129 | 2,809 | 3,143 | 2,909 |
| Tripadvisor | 1,560 | 604 | 902 | 1,492 |
| eDreams Odigeo | 633 | 241 | 334 | 577 |
| Despegar | 525 | 131 | 323 | 538 |
| Trivago | 942 | 304 | 412 | 574 |
| MakeMyTrip | 527 | 189 | 295 | 533 |
| Lastminute.com Group | 392 | 128 | 163 | 316 |
| On the Beach Group | 194 | 97 | 42 | 174 |

**Source:** Statista, 2024

The most popular OTAs in terms of the average time users spend on the website, the average number of pages per visit and the bounce rate (leaving after just one page) for the first two months of 2024 are in first to third place respectively: Booking.com, Tripadvisor and Airbnb (Similarweb, 2024; Semrush, 2024). The number of scientific publications about OTAs has increased or remained the same over the last ten years (Figure 1) when analysing the search results of the Scopus database for the TITLE-ABS-KEY („online travel agenc*") from 2013-2023.

The improvement of goods, services and business processes through the use of modern technology is the trend of developments in the global travel and hospitality industry. The use of information and communication technology (ICT) to satisfy customer needs, improve the customer experience and increase the competitiveness of travel-related companies is referred to as digital tourism (Benyon et al., 2014). Digitalisation with smart features in the travel industry harnesses the connectivity of modern technologies and creates innovative and attractive products/services that ensure added value for stakeholders (Buhalis, 2020).
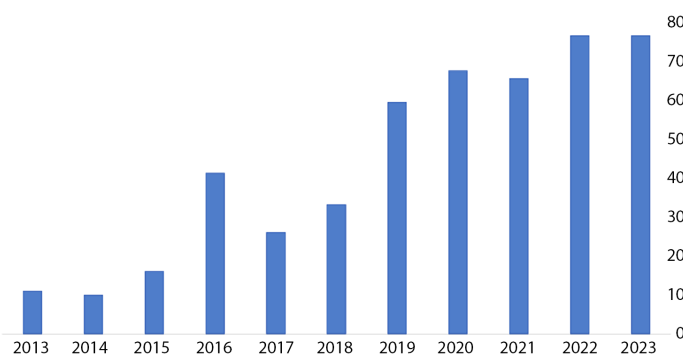
**Figure 1.** Number of publications 2013-2023 TITLE-ABS-KEY („online travel agenc*")
**Source:** Own processed from Scopus analytics

OTAs play an important role in the hospitality industry as they provide a valuable service to potential customers by enabling them to find and book accommodation online. In addition, OTAs increase the visibility and profit of hotels that use their services effectively (Lv et al., 2020). Ensuring the quality of services offered by OTAs is becoming increasingly important for businesses and customers as the digital world continues to change. AI can be used to improve personalised tourism recommendations and user experience in OTAs (Fararni et al., 2021). The travel and hospitality sector benefits from big data analytics that use AI methods to continuously learn from customer input and interactions, leading to a prediction of customer behaviour (Šuman et al., 2023). OTAs are constantly developing new features using modern technologies such as AI to provide a better customer experience, personalised features, advanced search capabilities, recommendations, itinerary creation, virtual assistants, an advanced rating system, dynamic pricing and special offers, cost-saving opportunities, chatbots and much more (Li et al., 2021; Son et al., 2022). The results of a serious study on the use of OTAs showed that customers' plans to use OTAs tend to be encouraged by factors such as ease of use, reliability in terms of service delivery, maintaining a high level of service, price opportunities, and the chance to benefit from promotional offers (Talwar et al., 2020; Lee et al., 2022; Oumayma & Ez-Zohra, 2023).

Online travel agencies (OTAs) can be evaluated on many factors, including their effectiveness and attractiveness, *the information quality of the websites*, (Chen & Chang, 2018), *the ease of use of the supporting technology*, *the cost* (El-Said, 2020), *images and visualisations* (Shaputra et al., 2023). Other possible evaluation parameters are: *user experience* (ease of navigation, the booking process and overall usability of the OTA's website or mobile app) (Chen et al., 2022), *price transparency* (clear information on costs, including any hidden fees or additional costs), *customer service* (availability and quality of support provided by the OTA, especially in situations where changes or cancellations are required), *payment security* (ensuring that the OTA offers secure payment options and protects personal data), *cancellation and refund policies* (clear and fair policies for cancellations, changes and refunds), *personalisation* (the ability of the OTA to provide personalised recommendations, variety of options based on the customer's preferences and previous bookings) (Webb, 2016). *The range of travel products* (such as flights, hotels, car hire and holiday packages), *reviews and ratings* (access to customer reviews and ratings for the listed services and accommodation that can influence booking decisions), *loyalty programmes* (the existence of rewards or loyalty programmes that offer benefits for frequent use of the OTA services) (Nicholson, 2023). Considering the new technological development, existing research and the increasing popularity of OTAs in the travel industry, the authors identified the evaluation parameters and conducted a qualitative and quantitative analysis, which will be presented in the next sections.

## 3. METHODOLOGY

For Croatia, a short questionnaire was sent to 183 respondents in which they were asked to indicate which OTAs they use in a multiple-choice question. The results corresponded to the three most popular OTAs worldwide: (Booking.com 183, Airbnb 98 and Tripadvisor 67). Therefore, we analyzed these three OTAs considering 9 parameters (based on Chen et al., 2022; Webb, 2016; Nicholson, 2023):

1. **The user interface and user experience** are of great importance as they have a direct impact on user satisfaction when browsing offers and making reservations. A clearer, more intuitive interface improves the user experience.
2. **The booking process** should be simple, fast and transparent.
3. **Reviews and feedback** are crucial to increase user confidence.
4. **Search and filtering options** should be flexible so that users can find the exact arrangements they are looking for.
5. **Accuracy of information**, including prices, availability and descriptions, is crucial to avoid misunderstandings.
6. **payment security** is a top priority. Agencies with clear security guidelines for transactions and the use of reliable payment methods create trust among users.
7. **Website performance**, including loading speed and availability, has a direct impact on the user experience. Users expect fast and reliable online services.
8. **Customer support** should be available and responsive to help users in case of difficulties or questions.
9. **Collaboration with other services** (in the form of application programming interfaces - APIs) can further enhance the user experience by providing additional options or privileges.

For the quantitative analysis of website and mobile device performance, Google Lighthouse 10 (Table 2) and Google Page Speed Insights (PSI) were used in this evaluation using the Core Web Vitals metrics (there are also additional parameters on PSI) (Google Lighthouse 10, 2024; Web Vitals, 2024). Lighthouse works with simulations of lab data for websites, including on mobile devices, and converts each of the 5 observed parameters into a value from 0-100, depending on the log-normal distribution of Lighthouse scoring (created with real website data) (Lighthouse 10 Scoring, 2024), where: 0 to 49 (red) means **poor**, 50 to 89 (orange) means **needs improvement**, 90 to 100 (green) is **good**. PageSpeed Insights works with real data from the field and generates the results of the Core Web Vitals parameters based on the last 28 days for both mobile and desktop devices.

**Table 2.** Lighthouse 10 scoring

| Audit | Weight |
|---|---|
| First Contentful Paint (FCP) | 10% |
| Speed Index (SI) | 10% |
| Largest Contentful Paint (LCP) | 25% |
| Total Blocking Time (TBT) | 30% |
| Cumulative Layout Shift (CLS) | 25% |

**Source:** Lighthouse 10 Scoring, 2024

**First Contentful Paint (FCP)** metric measures the time it takes for the first visual element to appear on the user's screen. A faster FCP contributes to a better perception of the loading speed

of a page. **Speed Index (SI)** estimates the speed of page loading. It measures how quickly the content is displayed on the screen. A lower number means faster loading. **Largest Contentful Paint (LCP)** measures the time it takes to load the largest visual element on the screen. A faster LCP means that users receive relevant content faster. **Total Blocking Time (TBT)** measures the total time during which the user experience is blocked by the execution of JavaScript. A smaller TBT means a better user experience as the page can respond faster to user interactions.

**Cumulative Layout Shift (CLS)** metric measures the stability of the page layout during loading. Significant layout shifts can lead to user frustration. A lower CLS number indicates a more stable user experience. **Interaction to Next Paint (INP)** measures how quickly a website responds to user interactions and is a metric of Core Web Vitals.

For the other parameters, the empirical analysis was carried out by performing all expected user interactions on the website and mobile app of Booking.com, Airbnb and Tripadvisor, as shown in the Results and Discussion section.

## 4.   RESULTS AND DISCUSSION

Figures 2,3, and 4 show the results of Lighthouse and Table 3 shows the results of Core Web Vitals. The green frame indicates the best result and the red frame the worst result of the observed parameter for three OTAs. It is important to note that the following tests may have inherent variability. Thus, when repeated, they may yield different results due to changes in internet traffic routing, browser extensions used, ad loading, etc.

**The results for the Lighthouse scoring:** Booking.com has a good performance on FCP and CLS, a poor performance on SI and TBT, but the best on SI and LCP (although these scores are not good). Airbnb has the worst overall performance (55%) and performs poorly on the following metrics: SI, LCP and TBT, worst on FCP but best on CLS. Tripadvisor was generally good in FCP (the best relative result of all three OTAs) and CLS (although the worst CLS of the three OTAs), poor in SI and LCP (also the worst relative result) and the best relative score for TBT (although the score could be improved).

The results for PSI with Core Web Vitals metrics (mobile and desktop, Table 3) show a slightly different result, where Tripadvisor performs best on LCP, INP and CLS (mobile), while booking.com performs best on INP and CLS (desktop). Airbnb also had the worst performance here for almost all metrics. The result for each metric is the 75th percentile of page loads.
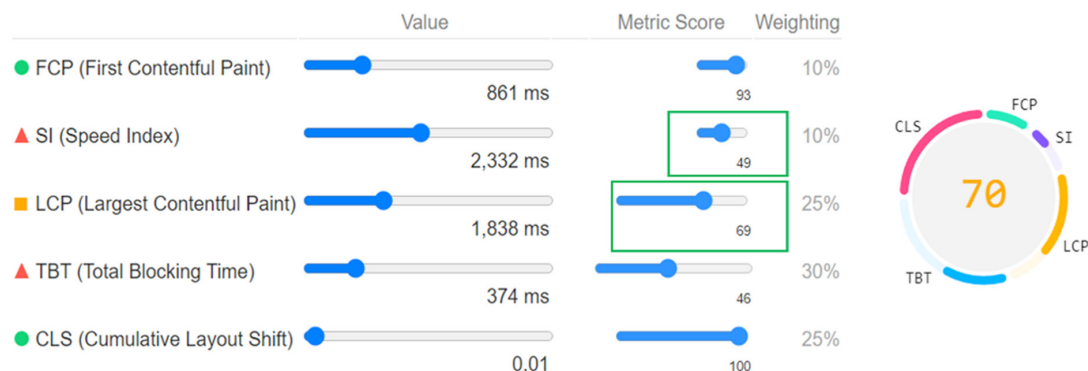


**Figure 2.** Booking.com results with Lighthouse 10
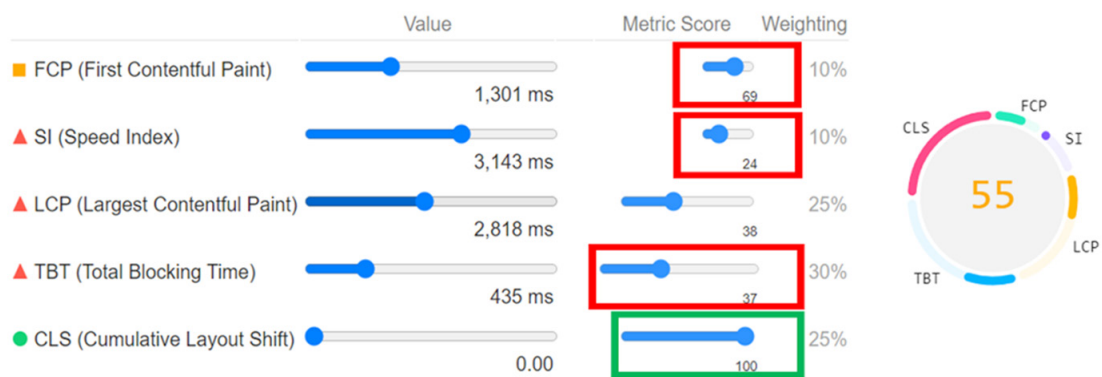
**Source:** Own processed from Lighthouse 10 results

**Figure 3.** Airbnb results with Lighthouse 10
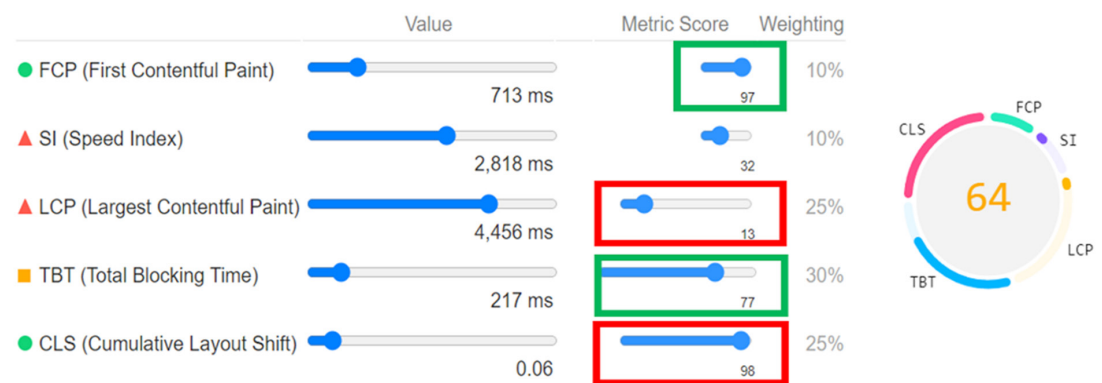**Source:** Own processed from Lighthouse 10 results



**Figure 4.** Tripadvisor results with Lighthouse 10
**Source:** Own processed from Lighthouse 10 results

**Table 3.** PSI with Core Web Vitals metrics for mobile and desktop



**Source:** Own research based on Core Web Vitals analysis

The summary of the results of the qualitative research for all parameters is shown in Table 4.

**Table 4.** Qualitative research results for nine selected quality parameters (red are drawbacks)

| | Booking.com | Airbnb | Tripadvisor |
|---|---|---|---|
| **User interface and user experience** | • Stay, flights, car rental, taxis, attractions<br>• Personalized offers<br>• Smooth, intuitive navigation through the graphical interface<br>• Distinctive brand colours<br>• Problematic slide bar at the top of the application | • Accommodations and experiences<br>• Distinctive brand colours, fonts are easy on the eyes and unobtrusive<br>• App navigation is intuitive, smooth, easy to go back to previous screens, screens are balanced<br>• Does not remember last viewed properties, lacks personalized offers<br>• Customer support is "hidden" within the profile | • Hotels, restaurants, things to do, flights, forums for sharing experiences<br>• Combination of green, black, and white.<br>• Fonts used throughout the UI are appropriate in style and size, with more important items bolded<br>• AI travel planner<br>• Fluid and intuitive navigation through the application<br>• Information overload on the initial screen |
| **Booking process** | • Signing into the user account<br>• Selecting the type of accommodation<br>• Additional options such as free cancellation, included breakfast<br>• Choosing the payment method<br>• Email confirmation of the reservation<br>• Managing reservations | • Signing into the user account<br>• Selecting the type of accommodation<br>• Sometimes requires host approval and writing additional messages about the nature of the trip<br>• Managing reservations | • Finding suitable accommodation and reading reviews<br>• Redirecting to other OTA websites<br>• Confirmation of reservation from the appropriate OTA<br>• Reintroduction of "instant booking" |
| **Reviews and feedback** | • Each property has reviews<br>• After completing the reservation, the guest can leave a review<br>• The host can respond to the review, and the response is public<br>• Ratings range from 1 to 10 | • Reviews for each property are available<br>• After completing each reservation, both guests and hosts can leave reviews<br>• Host's response to the review is public<br>• Direct contacting of the host is possible<br>• Reviews for experiences, reviewing the guide | • Relies on reviews submitted by users after experiencing various services<br>• Rated on a scale of 1 to 5 stars<br>• Users provide detailed descriptions of their experiences<br>• Owners can respond to reviews. |
| **Search and filtering options** | • Length of stay, number of adults, number of children, number of units<br>• Location recognition<br>• Different appearance of the search box for each item<br>• Numerous filter categories<br>• Sorting<br>• Number of units can be confusing for the user (unexpected results) | • Location, length of stay, number of people, and number of pets<br>• Selecting location on the map or by input<br>• Consistent appearance of the search box<br>• Abundance of filtering options<br>• Sorting feature is absent | • Only need to enter the location to be visited. Then a new window with multiple tabs opens.<br>• Filters results based on proximity to a specific location or landmark.<br>• Sorting |
| **Accuracy of information** | • High - Mechanism to ensure that only guests who have stayed can provide ratings and reviews, plus moderation by booking.com | • Ratings and reviews are less controlled; hosts have the ability to rate guests | • Ratings and reviews of offerings to all users<br>• Integration with other OTAs for payment processing, thus ensuring accuracy of information comparison.<br>• Rigid system of reviews moderation |
| **Payment security** | • HTTPS protocol<br>• Cash and online payment | • HTTPS protocol<br>• Online payment<br>• Various payment methods depending on the country<br>• Money is transferred to the host only upon confirmed arrival | • HTTPS protocol<br>• Online payment<br>• Payment only processed 10 days before service usage |

| | Booking.com | Airbnb | Tripadvisor |
|---|---|---|---|
| **Website performance** | • Best performance according to Google Lighthouse and second using Google PageSpeed Insights (Core Web Vitals) | • Among the observed OTAs, the worst performance according to Google Lighthouse and PageSpeed Insights (Core Web Vitals) | • Second performance according to Google Lighthouse and the best performance using Google PageSpeed Insights (Core Web Vitals) |
| **Customer support** | • Messages and calls to the help centre available 24/7<br>• For accommodation inquiries, it's recommended to contact the host<br>• Poor reviews on Trustpilot due to long and complicated refund process | • 24/7 customer support<br>• Getting started guides<br>• Air Cover functionality<br>• Poor reviews due to the perception that hosts are protected while travellers are not | • Frequently Asked Questions (FAQs)<br>• Forums<br>• Medium rating on Trustpilot, but also similar to booking.com issues with refunds |
| **Collaboration with other services** | • The API is not public<br>• Connectivity partners receive the API<br>• The API offers sending and receiving data | • The API is not publicly available<br>• Airbnb reaches out to its prospective partners with offers for API access | • API is available for free upon registration<br>• Paid version of the API offers more features |

**Source:** Own research

## 5. CONCLUSION

OTA apps are indispensable resources for today's travellers. They offer flexibility, choice, affordability and ease of use, giving them access to helpful information and assistance along the way. The popularity of OTAs is increasing and is expected to grow further in the coming years with the rapid development of modern technologies.

In this paper, a quantitative and qualitative analysis of the currently most popular OTAs worldwide, Booking.com, Airbnb and Tripadvisor, was conducted. The quantitative evaluation based on two different methods (Google Lighthouse 10 and Core Web Vitals in Google PageSpeed InsightResults) showed that all three OTAs have some areas that need to be improved (SI, LCP, TBT). The overall results with Lighthouse 10 were best for Booking.com, while Tripadvisor performed best with the Core Web Vitals metrics.

Another eight parameters empirically analysed on the website and mobile application are listed in Table 4. Each OTA has some drawbacks, but in general, all observed OTAs satisfy the customers' needs in terms of the observed parameters.

The limitations of the study are reflected in the limitations of the empirical tests of the observed OTAs and the small number of test scenarios (basic user interactions with the system) as well as the inherent variability of the tests in quantitative performance analysis. Future research plans aim to monitor and evaluate the success of AI features in OTAs in terms of customer satisfaction and technical performance.

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# An Insight Into the Indigenous Intangible Heritage and the Level of Engagement of the Local Population Towards the Contribution to Creating Cultural Products

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**Abstract:** *Emphasizing the attitudes of the population related to knowledge of cultural heritage, this paper focuses on the degree of engagement of the locals, creating local potential products that could contribute to the overall destination quality as to the fundamental marketing unit. In accordance with the role of intangible heritage, guided on premises of uniqueness, creativity, community responsibility, educational levels of the local population were researched in detail. A survey of 210 respondents was conducted throughout summer 2023, as a continuation of the primary research conducted in 2022. Emphasizing the presence of the local population's traditional connection with the way of life, traditions and customs, the results show that the population of this region partially recognizes the originality of potential products. Obtained results indicate the necessity of increasing knowledge level, the usefulness of collaboration with local communities, and readiness to create innovations or improvements for capabilities to respond with quality when targeting on cultural marketplace.*

## 1. INTRODUCTION

Between two opposite poles that require transformation and prevention of values as the first step towards harmonization of necessities and expectations, authors wonder if it is possible to satisfy contemporary tourism expectations with an emphasis on sensitive requests for professional prevention conservation of cultural heritage. Accordingly, the first step that contributes to this effort, by insight into the awareness and knowledge of the meaning of heritage, refers to a) a powerful connection of the local population with the space through the knowledge of the historical belongings, b) local population's awareness of spatial affiliation and cultural identity of the area. According to Towse (2014), an insight into the findings could be based on the local population's attitudes about awareness and acquired knowledge about cultural heritage, the degree of their involvement in the process of creating local cultural products and active participation in cultural events. It is about perfect modalities of communication as a cultural expression that covers the areas of language, speech, singing, crafts, customs, myths, legends and lifestyle as Lerenzini (2011, p. 102) stated. In the frame of responsibility and the knowledge interpretation of intangible cultural heritage, contained in religious and historical events, many authors emphasized the importance of living history and awareness of locals of the usefulness of that platform for self-identification. Communication should be based on "constitutive factors" of heritage that cover the identity of the culture and belonging bearers in the common modality of self-identification. According to Bedford (2024), ICH tangible Cultural Heritage supposed

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two key elements: a) distinguishing heritage, referring to the way cultures identify space, objects and significant artefacts that are referential for its expression and b) embodying heritage, referring to the activities expressed by the ICH. Luekveerawattana (2024) found out the synergy of the influence of cultural factors, values, the capacity of facilities, tourism management (price) and tourism management (people) and their positive effect on innovations in cultural heritage tourism". According to Timoney (2024), "emphasis should be placed on a more creative approach to increasing attendance, on creating links from the past and present, by involving residents in local heritage and monitoring visitor engagement with local heritage in the form of Historic Environment Records (HERs). According to UNESCO (2020) "Encouraging an uncompromising improvement of the international visibility of space, using heritage as a tool - in the long run is possible and counterproductive to the fundamental principles of ICH originality. This increases the possibility of disrupting the vital role of living heritage. Heritage is the living fabric of people who build their identity on originality, the right to belong to the local community and the right to protection. Such practices were possible only because of the living characteristics of the ICH, adaptability and understanding of the rights of people who pass these treasures and values from generation to generation. In response to environmental challenges, interactions with nature and their history, people continuously recreate communities and groups. The promotion of cultural diversity and creativity is based on the permanent contribution of human activity in the creation of identity over time (UNESCO, 2020).

## 2. LITERATURE REVIEW

### 2.1. Cultural and Scientific Work and Research on Intangible Heritage

A multidimensional approach to cultural heritage, a shit from an aestethic type of evaluation towards an approach based more on cultural relevance are the principles of a holistic approach to the observation of cultural-historical heritage. Some authors point to the demonstration of changing cultural perspectives inspired by performances, and traditions, which indicates a dynamic component of interpretation that shapes intangible heritage. In a broader context, cultural heritage was intensively changed and supplemented and the Paris Convention in 1972. defined it as material heritage. Numerous research studies that lasted over 30 years followed, for UNESCO to include ICH as part of Cultural Heritage.

Measures to guarantee the sustainability of intangible cultural heritage include the activities of identification, documentation, research, preservation, protection, promotion, improvement, and transmission, either through formal or informal education, as well as the revitalization of various aspects of such heritage. ICH is manifested in the following domains:
1. Responsibilities of preserving oral traditions and expression, including language as a carrier of intangible cultural heritage;
2. Performing arts;
3. Social practices, rituals and festive events;
4. Knowledge and practices related to nature and space;
5. Traditional production.

The development component of protection measures must be developed and applied following the consent of the stakeholders and the readiness and participation of the community itself. For the protection of intangible cultural heritage at the national level, each independent country shall take the necessary measures to ensure growth. Local communities contribute to the

transmission of values and communication of cultural heritage. Originality as a result of compatibility with the historical context of the event is assessed under environmental challenges, and priority goals in the area of the culture and landscape. As a reflex of space and time, this dynamic component of intangible heritage such as games, events, language, and dances, defines the specific socio-cultural conditions of the local community, ensuring its developmental continuity of identity. Modifications often managed by local stakeholders, precisely those whose spatial environment the heritage has taken root in the historical context, the more present liberalization of interpretation that deviates from the strictly defined rules of the profession is a serious threat to intangible heritage in the light of its "essential" fragility. This alludes to the problem of questionable reputation, necessary prevention and protection, and also refers to the debatable relationship between originality and contemporary production in the context of moving away from originality. An overview of the segments of intangible heritage shows an exceptional level of connection with the local population, the level of prevention and preservation, on the other hand, depends on local stakeholders for professional preservation and care. Throughout the process of getting to know various cultures, learning and preserving traditions, generations have been allowed to participate in certain segments of heritage. The goal is to recognize cultural differences and the application of knowledge and competence in preserving the originality, value and recognition of the local area - individual destinations, both in the country itself and internationally.

## 2.2. Intangible Heritage in the Context of the Social Needs of the Community – An Example of the Area of City of Sinj and Its Surrounding

The Republic of Croatia has 21 intangible heritage goods included in the representative list of UNESCO.

Three protected properties from the list belong to the area of the city of Sinj and its surroundings:
1) Sinjska viteška igra Alka (The Sinjska Alka - a knights' tournament in Sinj)
2) Nijemo kolo Dalmatinske Zagore (Nijemo kolo - silent circle dance of the Dalmatian Hinterland)
3) Ojkavica ili Sinjska rera (Ojkanje singing)

Using an analytical approach, through a combination of professional knowledge, the relationship between stakeholders and institutions in culture, their level of engagement in the protection of goods, and the promotion of goods for the co-creation of innovative products for better visibility in the interpretation of its identity have been considered. This creates a good platform for determining the potential for additional product development in culture, upgrading the area as one of the destination's products. The findings of these secondary studies of the existing intangible heritage, as part of a representative list of intangible heritage under UNESCO protection, are accomplished by findings of empirical research that researched the involvement of residents through the assessment of the level of recognition of potential heritage values as potential cultural products. Starting from the genesis of the analytical approach to intangible heritage, the classification of potentials in the area of the city of Sinj and its surroundings is defined as well as the degree of protection of the goods along with the etymological definition of intangible heritage. Shaping the space defined by the presence of protected intangible heritage, otherwise as part of the representative list of UNESCO heritage, represents a development level and foundation in the interpretation of intangible cultural heritage contained in religious and historical events. This is a good basis for researching attitudes about priority activities that the local

population considers as a key segment for achieving recognition by local stakeholders while pointing out the need for more intensive investment in education through levels of integration of cultural and historical heritage into the core of the tourist offer, which is confirmed by experts at the same time. In Croatia, there are interesting intangible heritage funds related to tradition and expectations, from the making of traditional toys in Croatia to neglected traditional pottery near the city of Sinj and other segments such as the knights' game Sinjska alka.

From the above, the second key moment of the research that supports the previously obtained results is related to the possibility of valorization of the social factors of tourism development - as a basis for creating an attractive tourist product and branding potentials. Considering the existence of the rich cultural heritage, gastronomy (traditional dish Sinjski arambaši - protected intangible cultural good of the Republic of Croatia, Cetina trout, wines of the Cetina region that date back to the time of the Greek settlers, the Romans and the Illyrian tribe Delmati before the birth of Christ), natural resources, protected goods that are under the protection of the Ministry of Culture and Media of the Republic of Croatia, with an emphasis on the three products from the UNESCO list of intangible heritage should be focused on immediate prevention -Ojkavica or Sinjska rera singing and Nijemo kolo (silent circle dance of the Dalmatian Hinterland).

Sources in local communities obtained from collected data (materials and documentation) in the archaeological collection of the Franciscan monastery and museum in Sinj have shown a historical perspective, which should be confirmed in the form of presentation of local events and festivals for the local community and their guests. The identity of a tourist area is therefore a simple reflection of the recognition and wealth of an individual area which can be improved through various interactions as well as professional guidance.

## 2.3. Creating the Identity of the Tourist Area

When creating and shaping the identity of tourist areas, the attitudes of the population depending on age groups, their ways of experiencing tourists, mutual relations between generations, and ways of implementing the identity in the best light should be taken into account. With an interactive approach, it is important to point out the representation of the heritage space within the product of an integral cultural tourism destination, the intangible heritage that preserves a precious source of value that should be smartly valorized and integrated into production units. Research confirms that the loss of excellence deprives human groups that lead to losing their connection with the self-identity of the way of life, which leads to the impoverishment of cultural diversity, as an achievement of civilization. Examples of the future development perspective must take into account the interpretation of local events with regard to typology and demarcation by size since they are based solely on the originality of performance and approach. The performance should implement innovations with a measure of space and a level of knowledge of the border between originality and professional performance, returning to the beginnings and basic structures as the foundation and base of this cultural asset.

According to Luger and Wöhler (2010), "ICH communities are exposed to numerous challenges and tourism as a dynamic system that unites different influences and complex interests is one of them. Cultural resources in the context of economic value for initiating quality of life are often measured by tourism. In communication with users, and visitors in delivering the values of intangible heritage, local population represents an indispensable platform and the potential in the creation of the destination's cultural and tourist image.

## 2.4. Local Community- Social Paradigm and Identity Through the Engagement of the Local Population

The population, in the development of tourism, has different perceptions, they express different levels of tolerance and perception with regard to the way of inclusion, bearing in mind the number of tourists and the relation between the local population and tourists. It takes into account the time context, the consequent effects of the quantitative increase in demand, and dominantly begins to serve and use elements of another culture as a result of their exchange. Departure from originality, commercialization, and placement adapted to interest groups of consumers, use of product names as a place for promotion and a larger volume of work, contribute to moving away from the priority goals of protecting the human rights of members of human communities. ICH differs from material modalities based on their strong human component intrinsic to all human (cultural) interaction, shaping discourses and recognizing practices at all levels. The former hierarchic structures survived between immaterial and material forms, permeating the historical legal context. It is characterized by evolution and developmental continuity. Spode (2013) pointed out that tourism can have a negative impact on cultural heritage processes in other ways. Two contrasting effects come to the fore, associated with the appropriation of perspectives in tourist worlds, namely homogenization and differentiation: these represent two binary paradigms that relate in harmonizing or particularity-oriented ways to intangible forms of heritage, encompassing geographical and other dimensions.

## 3. EMPIRICAL RESEARCH – FIELD RESEARCH

### 3.1. Methodology

The level of knowledge of the respondents and their familiarity with inclusion and connection, based on the perception of belonging to the region and pride - The survey conducted empirical research on a sample of 210 local respondents living in the area of the city of Sinj and its surrounding: Glavice, Hrvace, Otok and Trilj throughout 2023., as a continuation of the primary research conducted in the summer of 2022. Based on the results obtained by the survey conducted in 2023, 99 respondents gave valid responses.

Using the method of associations, the connection between the Sinjska alka and the historical heritage contained in the architectural heritage was examined through data source: Archaeological collection of the Franciscan monastery in Sinj - protected cultural heritage.

Methods of associations related to intangible goods:
a)   Old Town Fortress;
b)   Kamičak Fortress;
c)   Čudotvorna Gospa Sinjska -Miraculous Lady of Sinj;
d)   Sinjska alka- Alka tournament (The knights' game).

Archaeological material and museum materials were used as a framework tool for determining and examining the level of education of the local population (it should be the bearer of living heritage). The goal of this work is to indicate the level of recognition and engagement of potential products of the local area from the perspective of the local population through attitudes about knowledge of cultural assets, their preservation and engagement in promoting and including them in the entire community as a destination product.

For this purpose, the level of readiness to cooperate with the local community was examined through:

a.    the level of knowledge of the respondents - the level of knowledge of the local point of view on the promotion of potential products and the introduction of innovations,

b.    degree of engagement in creating new cultural and touristic opportunities.

Starting from the genesis of the analytical approach to intangible heritage, along with the etymological definition of intangible heritage, the classification of potential and degree of protection of heritage assets is defined. On the possibilities of potential development, through the level of knowledge of the respondents and their familiarity with inclusion and connection based on the perception of belonging to the region - the paper conducted an empirical survey of the local population. In accordance with the role of intangible heritage, and guidance by the premises of uniqueness, creativity, responsibility, the level of education of the local population was investigated in detail.

## 3.2.  Research Results

### 3.2.1. Respondents Profile

In order to describe the profile of the respondents in more detail, and thereby indicate the reliability of the data obtained from the survey, the results speak in favor of the level of education, the enviable level of knowledge and competence that respondents have acquired through the level of their ability. At this level, which is also contributed by the level of professional education the respondents have, which is the key to the results obtained, the data speak in favor of a higher university degree which is also confirmed by the data at the level of three-quarters of the total number of respondents, while one quarter has high school education. The local population was the optimal choice for conducting this type of research because it increased the credibility of the results.

### 3.2.2. Engagement and Social Context - Event Formation and Development Potentials

In the following section, graphs are presented and related to the results obtained in the summer of 2023.
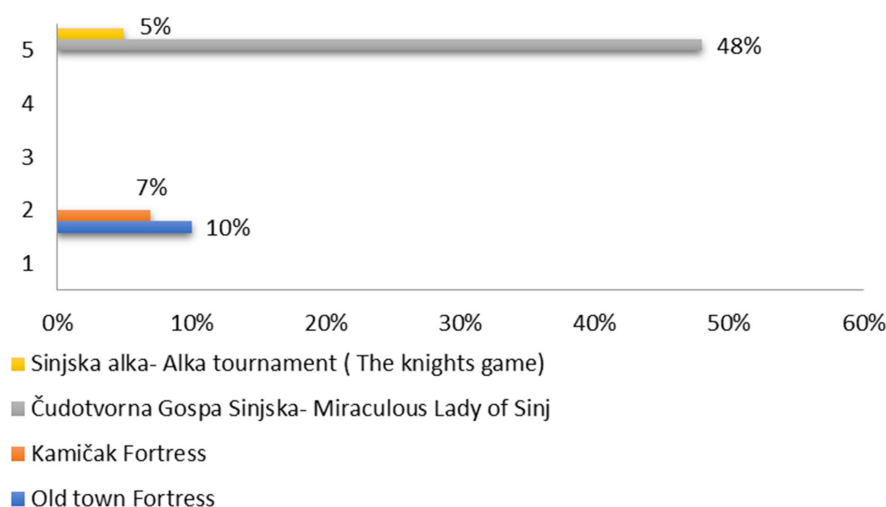


**Figure 1.** Associations of respondents of the city of Sinj (Education knowledge involvement)

**Source:** Own research

With regards to the elements of the potential symbols for branding the city of Sinj, while emphasizing the presence of the local population's traditional connection with the way of life, traditions and customs, the results show that the population of this region partially recognizes the originality of potential symbols on the market.

Since authors confirmed to a small extent the familiarity based on the method of association with the heritage building, which is a symbol of the fortress and survival of Sinj, it is important to point out the fact of not recognizing the historical context of the Sinjska alka (5%), Miraculous Lady of Sinj (48%) and Old town Fortress (10%) that arose in 1715.
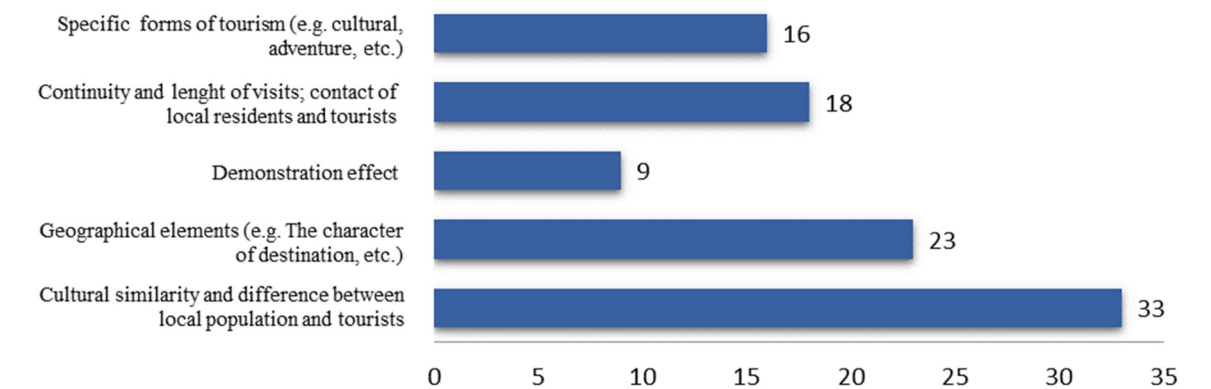


**Figure 2.** Socio-cultural aspects of tourism development on the development
of attitudes about the tourist area
**Source:** Own research

From the above, the next key moment of the research that supports the previously obtained results is related to the possibility of valorizing the social factors of tourism development - as the base for creating attractive tourist products and branding potentials. In the overall structure of the answers, 33% of respondents have shared aspects of cultural similarity and the difference between the local population and tourists as a better development of attitudes as well as choosing geographical elements (23%), and continuity and length of visits. The results have opened up maneuvering space for specific forms of tourism (16%) and created new research about connectivity between those forms. This should be empowered by the need for stronger cooperation at the level of the local community and the involvement of residents in project activities.



**Figure 3.** Orientation of tourism development in the area of the city of Sinj
and its surroundings
**Source:** Own research

In accordance with an orientation of tourism development in the area of the city of Sinj and its surrounding respondents pointe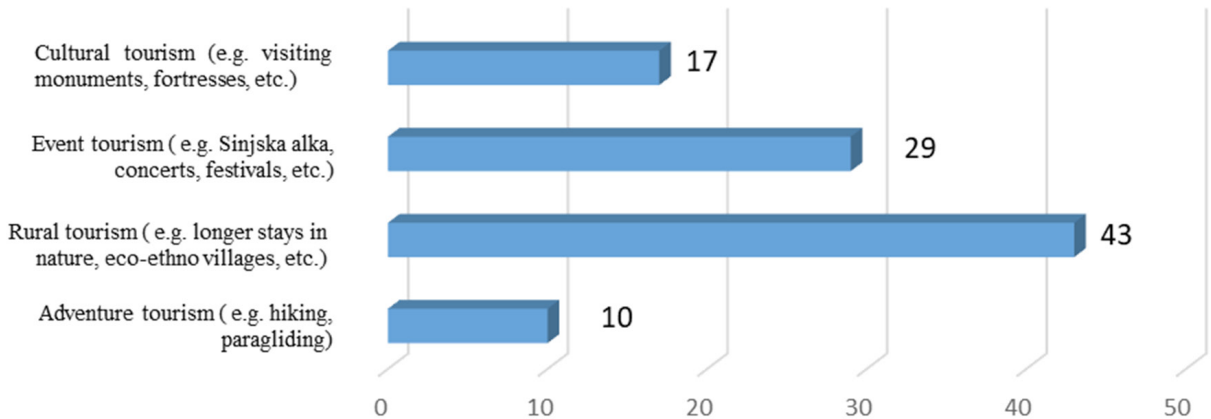d out possibilities of development mostly based on rural (43%) and event tourism (29%). As was already mentioned in Graph 2. the local population needs guidance and participation in the creation of the tourist offer, as well as its promotion and exploitation to stand out in the competitive market.

## 4. FUTURE RESEARCH DIRECTIONS

Future development perspectives must be taken into consideration in a way that the relevance of the topic takes care of implementing new ways of interpreting local events that must be based on the originality of performance and approach. The performance should implement innovations, as well as to emphasize the measure of space and the level of knowledge between originality and professional performance, returning to historical beginnings and traditional structures as the foundation and base of this cultural asset. Future research should aim to encourage communication that can be implemented through various interactions of social groups in the local community, referring to their way of life, habits, traditions and amenities as a reflection of culture. Since authors confirmed to a small extent the familiarity based on the method of the association with the heritage building which is a symbol of the Old Town Fortress and survival of the city of Sinj in 1715., according to which the Sinjska alka appeared, authors were talking about an average or relatively low level of education of the local population and their engagement in the promotion of this valuable heritage. The local community must take into consideration better product promotion, even innovations, bearing in mind the usefulness of collaboration with the local population as well as improvements of services through networking and the use of platforms as a way of attracting the target group of consumers who recognize the culture of a nation.

## 5. CONCLUSION

This research aimed to point out the importance of education and the contribution of the local community in creating a competitive tourist area. Since development perspectives must take into account the interpretation of local events, the very core must be based on originality and a specific approach. The performance of the events themselves should implement innovations, taking into account the measures of space and the level of knowledge of the boundaries between originality and professional performance, returning to historical beginnings and structures. A typical spatial segment should contain structured patterns around which activities are formed and marketing potential products are established along with the space. Bearing in mind the development of the region, the direction of tourist affinities, the management of space by planning the behaviour of tourists, and the delivery of value in the form of a development strategy based on economic, sociological and spatial aspects, the question arises as to what visions of individual segments of development would be possible with regard to the already achieved structures. These visions should be oriented mainly to the development of the domestic point of view with an emphasis on their education and contribution to the local community, taking into account existing traditions and the availability of already existing resources. This an important fact, and at the same time a vision that should be taken into consideration in the further elaboration of the problem concerning the identity of the space and its recognition through identification with the intangible heritage of the area of Sinj and its surroundings, is what would make the city of Sinj stand out and become "leading" on the market among urban centres? This raises the question of added value and offers through cultural products and events. It would stand out due to the beauty of the rich landscape, the existence of a rich material and immaterial heritage that has

not been explored to the very end, the self-identification of people, as well as their interaction in creating a competitive tourist area. By shedding light on historical events and the roles they had in the social context of the development of identity, it was of great importance to investigate the level of emotional connection and attitudes of the local population in self-identification through their promotion. Of all the above, it is necessary to emphasize and take into account the existing potentials of the city of Sinj through its rich history, but also today, which is just waiting for the opportunity of cooperation of one people with an emphasis on the equal engagement of all residents together with the tourist community, to create recognition of the product throughout the year, and not only during August.

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# Development of Strategies for Dance-Related Tourism in the Realm of Experiential Creative Tourism

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**Anna Schiattarella**[2]

**Abstract:** *The objective of this research is to trace the benefits of a closer link between one of the least considered performing arts, namely, dance, and the tourism associated with it. Although there have yet to be many in-depth theoretical studies on its influence on tourism demand, an important role can be represented by dance. Many trips are undertaken to destinations that have seen the birth of specific genres and styles of dance. Tourists who enrich themselves with dance-related performances and experiences belong to a niche audience. Often, these are people already connected to the dance industry (theater operators, dancers, choreographers), and so rarely are audiences made up of more than just real amateurs in the audience. Three categories of participants in dance-related tourism can be identified: passive recipients, active dance tourists, and professional dancers. This paper intends to analyze the potential development profiles of this form of tourism, examining the central elements that can be applied to the strategy of a tourism destination.*

## 1. INTRODUCTION

Events understood as man-planned events, have always been the foundation of socialization and community-building and, today, have become such essential elements of tourist attraction that they have fostered the emergence of accurate industry management.

This research aims to trace the benefits of a closer link between one of the least considered performing arts, namely, dance, and the tourism related to it. The reasons behind the lack of relationship between the tourism and dance sectors lie in multiple causes, which are only sometimes easy to trace. Indeed, differences in organizational as well as planning arrangements, and then, a particular prejudice against the tourist on the part of the art world, which for a long time did not consider them as a potential target audience but instead as the antithesis to the committed and educated spectator. Setting aside the mistrust, the different aspects that characterize this relationship were analyzed.

Cultural tourism is one of the most exciting segments to analyze and, according to the World Tourism Organization, "*represents all those movements of people motivated by cultural purposes such as study vacations, participation in live performances, festivals, cultural events, visits to archaeological sites and monuments, pilgrimages [...] it is the need of people to confront diversity, to increase the level of knowledge, generate new experiences and new encounters*".

From what has just been described, the link between tourism and culture emerges, and there is no doubt that cultural tourism is an essential segment of global tourism. However, there are

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signs that this type of tourism has become a victim of its success and is becoming increasingly standardized, losing its unique characteristics.

All this has generated a desire in tourists for less standardized and more authentic experiences. Modern-day tourists constantly seek unique experiences that transport them into the local people's way of life and identity. Unsurprisingly, tourists' habits have changed in response to these changes. They now plan their vacations, construct itineraries, and move away from pre-packaged routes.

This paper, therefore, intends to fit into these considerations by analyzing the opportunities for the development of dance-related tourism from the perspective of destination management and destination promotion organizations, based mainly on tourism events related to or local dance-related traditions.

## 2.  THE ROLE OF EXPERIENTIALITY IN CULTURAL AND CREATIVE TOURISM

Tourism is an ever-evolving phenomenon. Just as any good or service produced and delivered in our society, the tourism industry adapts to the needs and preferences of people and the demands of the market. Indeed, consumer tastes change because of social transformations, adapting from time to time to new stimuli and awareness. This is how consumer preferences and needs guide the production of goods and delivery of services. This is where words such as customer care or satisfaction find their *raison d'être* in the current discipline of Customer Relationship Management[3]. It is not supply but instead demand that governs market dynamics today.

Tourism, too, is not exempt from this customer orientation. Tourists are not interested in services per se but are looking for solutions to increasingly complex needs, and they are no longer passive but active parts of this process. If the tourism industry, like the entire service sector, is customer-oriented and is shaped in such a way that it can respond to the customer's problems, the customer, in turn, interacts with it in search of the solution, giving rise to the classic meaning of the prosumer[4], a term that fully identifies the new active role played by the consumer today.

We are, therefore, witnessing a natural, cultural evolution of what concerns tourist enjoyment: we are moving from a tourist package where the tourist has a spectator role to a tourist offer where the guest becomes the leading actor of the same offer. The tourist offer tends to be increasingly transformed into a real-life experience and educational experience, capable of engaging emotionally, intellectually, and physically.

Experiential learning is a learning model based on direct experience[5]. From an emotional point of view, experience can be anything that triggers an emotion. In theory, every tourism offer-

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[3]    CRM (Customer Relationship Management) is a set of management solutions, organizational methods, and information tools that foster a company's relationship with its customers. This set of activities is directed at different stages of the customer relationship: acquiring new customers, developing relationships with existing ones to retain them, and sometimes involving customers in promoting the company's products or services.

[4]    Expression, coined by Alvin Toffler in his book The Third Wave (first edition: 1980): It is a merge of the terms producer and consumer, indicating a consumer who is himself a producer or, in the very act of consuming, contributes to production. The term arose to describe the prominence of consumers in an era that was moving away from mass serial production and adhering to the multiplicity of tastes and trends of citizens (Toffler, 2022).

[5]    It was studied by two great pedagogists such as John Dewey (1859-1952) and Jean Piaget (1896-1980) and psychologist Kurt Zadek Lewin (1890-1947), but became widespread thanks to David Kolb (1939) who, based on previous studies, developed the "experiential learning theory."

ing makes one learn something. Experiential offerings certainly can make people feel emotions, justifying the definition of "experience." However, it is on the concept of learning that they find the factual terminological basis and on which its definition is based.

While it is true that experiential offerings allow guests to immerse themselves in the local way of life and all that constitutes its identity and character, they can also be said to be cultural offerings. The difference between a simple experiential offering in the broad sense and an experiential offering in the narrow sense is precisely the direct (active) participation of the guest in the activities that make up the offering. Through direct participation, the tourist becomes an active part of the experience. This reinforces the shift from an "entertainment" to an "education" dimension.

Its main goal is to help tourists and visitors create an intense connection with the place they are visiting or the event they are attending. From such a point of contact, when the visitor feels connected to their surroundings, a positive feeling, a pleasant experience, and, consequently, a good memory of that moment arises. Understanding tourism as a cultural experience, travel allows users to enter a new and different reality, experience and live, and become a form of interactive culture. When interpreted this way, tourism becomes the tool for understanding, feeling, and analyzing the territory and its history.

The search for identity and authentic products, contact with residents, and opportunities to broaden one's horizons to experience the art, history, and traditions of places, even in a playful way: this mutation has been identified already in the early 2000s as "creative tourism." In this way, culture is expanded: not only art, monuments, and archaeology but festivals, events, performing arts, contemporary art, fashion, design, crafts, and food and wine.

What has been covered so far finds its ultimate expression in creative tourism. Richards and Raymond (2000), defined it as:

*"Tourism which offers visitors the opportunity to develop their creative potential through active participation in courses and learning experiences, which are characteristic of the holiday destination where they are taken."*

Creative tourism is, to all intents and purposes, a sub-category of broader cultural tourism and places alongside the enhancement of the tangible resources of an area and the enhancement of intangible resources through the active participation of the tourist, who becomes the co-creator of the product/service. UNESCO later formalized the definition as *"[...] a journey based on an engaging and authentic experience, characterized by learning about the arts, heritage or special characteristics of a place, which allows a connection with those who reside there [...]."* This form of tourism enhances the creativity, technologies, and intangible components of the area's culture to meet local communities' need for cultural expression and contemporary visitors' demand for authentic experiences.

Unlike traditional cultural tourism, where the community plays a marginal role if not absent, residents must participate actively in creative tourism. They are encouraged to share their area's local traditions, crafts, and culture.

Creative tourism is, therefore, an evolution of cultural tourism and offers visitors the opportunity to develop their creative potential through active participation in courses and learning experiences that characterize the travel destination.

The offer's creativity can reside in any activity; the only essential thing is that it is connected to the destination. This requires the creativity of those who manage and organize the destination's tourism offer, thus requiring some co-creation activity between tourists and the local community.

In conclusion, creative tourism develops with tourists' changing motivations and needs. If, initially, the tourist's primary motivations were related to a need for recreation and corresponded to an essentially physiological or basic need, later, with the spread of cultural tourism, the tourist begins to travel to satisfy a higher-order need related to the possibility of standing out from others. Finally, with creative tourism, tourists are driven by experiential needs: they want to experience the vacation, feel part of the host culture, and contribute to their personal growth.

Thus, there is a shift from a tangible and standardized or standardizable type of culture, identified in the area's material resources, to an intangible kind of culture, defined and shaped by the people of the place and their interaction with them. For that reason, it becomes unique and allows people to enhance their skills, develop their creative potential, express their identity, and pursue their well-being.

## 3. EVENTS AND LIVE ENTERTAINMENT

The type of cultural events under consideration in this work is represented by live entertainment. Under this term, it is possible to group any artistic event that the consumer can directly enjoy without the use of media; therefore, the live performance sector includes all events with performative characteristics that involve the presence of an audience at the time of their staging. The disciplines of theater, dance, music, circus and the intermingling of different genres are part of this definition.

So, a distinctive feature and a requirement for the existence of performing arts is - precisely - the presence of the audience on-site now of the performance or execution of the work. This aspect differentiates this sector from other similar ones, such as cinema. It follows that the simultaneous presence of the audience and performers and the temporal and spatial limitation of the boundaries within which the performance takes place imply significant differences not only in the execution phase but also in how the creative and design phases are managed.

The managerial vision of the world of arts and culture is a recent circumstance that the artistic community has only sometimes shared, which is concerned about losing creative freedom and final quality. However, it must be noted that greater attention to the managerial aspects of the performing arts, thus gaining awareness concerning their implications-especially in uncertain times such as the present, well as making specific projects possible, can improve that difficult outcome given by artistic quality, economy, effectiveness, and efficiency.

Over time, events have changed from informal affairs to spectacular productions requiring new skill sets, experience, creativity, funding, planning, and leadership. As a result, event management has evolved into a business filled with new challenges, needs, and expectations of participants, sponsors, host communities, and many other partners on which the success of any event depends.

In live entertainment, self-financing is derived, by its very nature, from box office revenues; it follows that the quality and quantity of content production and public performance must be increased. It can be argued that it is a standard view that the performing arts sector is doomed to

inevitable failure. Reinventing a role for live performance is the challenge of the moment. While genre and styles vary with changing tastes, the mode of enjoyment of the live performance is invariant in drama or opera, music or dance, and in all that the 'live performance' universe encompasses. One datum that unites its many forms is that of the modes of production and fruition, which are closely connected with the territory. This is why the most nomadic and decontextualized works need a policy that invests in the territory to multiply its productive capacity. Not on the individual event but on the planning of events, on support for the production process from the preparation, on the development of knowledge starting from public education, on the refinement of professional expertise and the retraining of labor, on the valorization and creation of spaces, on facilitated access. Culture is the formative basis of a society and, therefore, must count among investments what today are considered merely production costs. A territorial policy that wants expansive effects boosting tourism, transportation, trade, and savings as much as possible can start with enhancing public performances.

## 4.   THE POSSIBLE INTERACTION BETWEEN TOURISM AND LIVE ENTERTAINMENT

Some of the most fascinating answers come from the cross-sector interaction between the tourism industry, the cultural and creative industries (CCIs) system, and the performing arts. Cross-sector study of these sectors highlights the mutual benefits that can be derived from such a relationship through constant synergistic work.

The first point concerns the contribution of destination attractiveness that creative industries can make; think of cities such as Milan and Paris for the fashion industry or Berlin and Vienna for the music system. A second aspect concerns the role of cultural enterprises in stimulating the creation of innovative goods and services for the world of tourism, as well as new ways of visiting urban centers or historical places through, for example, interventions by actors and other artists. Another area to consider is promo marketing, which is the creation of the identity of a place, a territorial brand, and its related promotion. Getting tourism spending to flow into quality cultural activities and services born in the territory being visited is one of the essential points so that tourism can support new artistic and cultural projects and qualify in a development process with the destination and its protagonists.

Today's challenge for the world of tourism and culture lies in analyzing their relationship on multiple levels, exploring cultural and economic opportunities from a perspective of enhancing the territory and its productions.

Tourism related to art cities, museums, and archaeology has been discussed extensively for several years. However, the relationship between tourism and performing arts has been much less analyzed, although it is exciting. Live performance enriches the cultural proposal and experiences available to tourists, strengthens the destination's image, reduces seasonality, and allows repeated visits over time.

The reasons behind the lack of relationship between these two sectors lie in multiple causes and are only sometimes easy to trace. Indeed, the different organizational design and communication arrangements, the diversity of objectives, and, above all, the objective organizational difficulty of the tourist offer at the local level do not facilitate collaborations. To all this, there must be added a particular prejudice against the tourist on the part of the theater and art world, which, for a long time, did not consider him as his potential target audience but rather as the antithesis

to the committed and educated spectator. Putting aside mistrust, it is essential to analyze this relationship between tourism and performing arts on their three primary levels of interaction: looking at the encounter between performing arts and tourism operators, performing arts and tourists, and performing arts and destination.

Quality festivals and events are among the most successful tools available to communities, states, and regions to increase tourism flows, create powerful branding and imaging opportunities, unite people, encourage positive media coverage, and improve economic impact and quality of life for those who live there. The higher the relationships between actors in the socioeconomic system, the higher the capacity to respond and adapt to changing market and societal fluctuations. In other words, social interaction networks increase the resilience of an area and its ability to react and adapt to external and internal disruptions.

Today, among the desires of consumers, there is a constant need to search for the identity of places. This need - which involves all spheres of society - stems from the need to rediscover a link with the past and is substantiated by an extreme curiosity towards anything that does not evoke imitation and homologation: a continuous search for authenticity. Tourists can obtain an authentic experience through interactions and relationships with local communities; in this sense, authenticity can be considered subjective as it emerges from individual experiences.

The evolution of tourism demand and the emergence of new markets make it essential to structure a highly specialized and professional supply system capable of responding effectively to complex needs. The tourism phenomenon, understood as social and expressive freedom, takes on special significance when it is recognized as protecting the landscape and enhancing cultural and environmental assets. The dimension of travel and vacation is configured as a fundamental need for the individual's development, manifested in the person's cultural enrichment and psychophysical well-being.

A first level of analysis of the relationship between tourism and performing arts is, therefore, that between performing arts artists and operators and tourists. The performing arts and events sector is a sophisticated relational system that connects people, companies, entities, products, and cultures. In a market made up of tourists increasingly eager to be the creators of their own travel experience and looking for physical and interpretive routes away from over-tourism, live performances can offer new ways of exploring places and be an important interlocutor in the co-creation of innovative travel experiences, supporting the development of quality tourism. The latter is one of the necessary conditions for sustainable development, and tourists must perceive it. The communication of value creation is required to activate tourist processes of understanding, deepening, and building respect for the places they visit. The performing arts in this have an essential but often underutilized function.

## 5.   THE LIVE PERFORMANCE FOR THE DESTINATION

The purpose of performing arts and events is to generate, on the territories where they take place, a series of stable spillovers regarding economic flows, tourist flows, infrastructure development, and protection of cultural identities. In other words, they serve to determine - even indirectly - a territorial brand policy, to define and fortify in a precise way the specificity of the offer of a destination, understood as a set of cultural and productive, economic and recreational activities.

The capacity of the performing arts to create wealth is also expressed in the local supply chain through a series of parallel and complementary consumptions, which enrich the facilities and activities in the area. So, performing arts make an essential contribution to the enrichment of a destination's offer, strengthen its attractiveness, and, in some cases, can be the primary motivation for travel. Festivals and cultural events can become decisive for the touristic success of a place; the richness and effectiveness of these events consist in being the fruit of a territory and the work of local entities that are proud to have been its creators (think of the Summer Festival of Lucca, the Ravello Festival, the Two Worlds Festival of Spoleto or the International Theater Festival of the Venice Biennale).

Another great power of events is attracting users even in less historically or artistically significant areas, helping generate value in degraded areas to be revitalized and redevelop historical and cultural interest sites such as villas, period residences, archaeological sites, or museums. In addition, performance and art projects can fit in multiple places: in cities, historical and cultural sites, museums, natural environments, or factories. Those managing a destination and performing arts professionals can act as faithful interpreters of a place, activating interactive and innovative ways of visiting and enjoying it. The ability to "make theater" of places and spaces has often been used to raise awareness of works and monuments excluded from traditional tourist routes and build a different relationship with nature. It is necessary, therefore, to aim to create services under the banner of sustainability understood in its three meanings - environmental, social, and economic - and to promote an original offer that stimulates public participation: a creative form of live performance can transform the boredom of a guided tour into an experience to be remembered and recounted, once back home.

To build a stable relationship between performing arts and tourism, many aspects must be addressed, and actions must be implemented. A prerequisite for realizing the latter is for the performing arts world to become aware of its importance within the cultural and tourism enhancement processes of places and territories. Undoubtedly, the performing arts offer is the starting point for structuring fruitful collaborations. Still, additional managerial, communicative, and distributive prerequisites must consider the interests and needs of those who organize and sell the tourism product.

Another aspect to work on is internationalization. While some performing arts, such as music and dance, have a universal language, others, such as theater, may experience more significant difficulties, first and foremost dictated by language. This is why the offerings of major Italian cities should take on more international characteristics to expand their target audience. Intercepting new audiences is one of the challenges of the entertainment world; it is necessary to broaden one's catchment area both territorially and to learn how to address a younger audience.

The theme of the training is the background to the reflections reported here in a scenario of significant and continuous transformation. Training is indispensable for any activity and must be constant for an effective exchange of knowledge, skills, and functions among the actors involved.

This is only the starting point; the path encompasses a complexity that varies depending on the environment in which one operates, the number of stakeholders to be satisfied, the relationships to be developed, and the new and articulated skills one needs to possess to undertake it. There remains no doubt that events create a stable relationship between tourism and live entertainment, and the local area, made up of real people and the local communities that bring them to life, has everything to offer and plays a crucial role in this.

## 6. GROWTH OPPORTUNITIES AND STRATEGIES FOR THE DANCE SECTOR AND CONCLUSION

The reasons for the little prominence given to the art of dance are indeed to be found in the social and economic evolution that has characterized the whole world, not just Italy, and in the -mistaken - conception that dance is an art for the few and of the few. The aim is to highlight the connection between tourism and dance and make the reader think about the tourist flows generated by the great national and international circuit of the "Terpsichorean discipline."

Dance has existed since the beginning of human life and at every historical stage. Throughout the ages, people have recognized dance as an essential means of communication, and dancing has meant expressing man's relationship with nature, society, and religion with the most incredible intensity. However, in today's national reality, there is a general and widespread disconnect between the public and dance, which can be traced to historical, artistic, and organizational reasons.

By broadly tracing the evolution of the relationship between spectator and dance from the origins of ballet as a performance form to the present day, a progressive communication problem emerges. If, for the elitist and aristocratic spectator of the sixteenth, seventeenth, and eighteenth centuries, ballet was an art form ideally attuned to the taste and culture of the class to which it belonged, the relationship between dance and audience became more complicated with the advent of the modern age, following the profound cultural, social and political transformations from the second eighteenth century onward. The most significant rupture in the relationship between spectator and dance occurs in the twentieth century. In addition to the definitive demise of the code of understanding of academic dance, the idea of individual art and the relativity of its value is affirmed, thus multiplying the canons of expression and interpretation. Moreover, with the rise of the middle and petit bourgeoisie, the catchment area widens. Above all, modern dance is born with its strong charge of linguistic, technical, formal, and ideological innovation. A more appropriate linguistic and artistic aspect then takes over: the new freedom of expression poses the problem of how audiences can adapt to the diversity of languages, where each artist is the creator of their type of communication. For its part, the audience, increasingly varied and generic, needs to gain the means to relate to the universe of danced language; thus, the problematic knot becomes communication.

What is essential is to be open-minded and sensitive enough to accommodate a mode of expression that, perhaps more than any other, induces an extremely subjective reception. The problem is that such a predisposition is not taken for granted in today's culture and society, which is why there is a need to spread knowledge to attract audiences and re-establish a channel for dialogue in the first place. Every art form's peculiar and fundamental premise, the ability to communicate and convey emotions, remains firm.

The most significant difficulties concern the production phase, above all, since art, and in this case, dance requires time and space dedicated to creating a work that must have universal meaning. This means that its message must simultaneously reach those who witness it without repressing the creativity of those who make it.

Three categories of participants in dance-related tourism can be identified:
1. passive recipients: spectators, visitors to dance museums, festival participants, etc;
2. active dance tourists: amateur dancers, participants in non-professional internships or competitions;

3.      professional dancers: participants in professional competitions, members of dance compa-
        nies, artistic cast of a theater, etc.

Many journeys are taken, even by mere enthusiasts, to destinations that have seen the birth of
specific genres and styles of dance. To give a few examples, think of Argentina, known for tan-
go; Cuba, the birthplace of salsa; Brazil, famous for samba; or Spain, for flamenco: it can be said
that almost every country in the world has its national dance[6]. Tourists who enrich themselves
with dance-related performances and experiences belong to a niche audience. Often, these are
people already connected to the choreographic sector (theater workers, dancers, choreogra-
phers), and rarely do you find an audience of more than just real amateurs.

Consumers, specifically tourists, are looking for experiences: travel takes on greater meaning
and value if it becomes a collection of memories related to activities typical of the place being
explored. Sometimes, these trips may be limited to just visiting prestigious sites such as theat-
ers, dance schools[7], museums, and attending performances; others, however, involve moving to
another city or country to take dance classes or even attend fairs - habits, the latter, that are be-
coming increasingly common. Experiences related to participation in courses, internships, or
competitions at the amateur dance level represent an added value for a travel package that can
be included in the proposals of tourist intermediaries. Trips of this type allow the tourist to be
transported to a different dimension through new cultural experiences and learning about the
history of another region; in fact, dance is inextricably linked to the destination's culture. Many
times, the ideas of an artistic project arise precisely from the context of reference, which can be
analyzed both socially and spatially, linked to both the territory and the context in which it takes
place. This type of experience brings tourists to know a foreign culture in a direct and particu-
larly intense way, compared to those they would have exploring the destination without know-
ing where to find characteristic places and how to take part in typical experiences.

Dance is a complex and technical art form. Still, it is also a practice that relates to a person's
mental and physical well-being, and it is possible to imagine it as a tourism experience even for
a portion of the population that is not trained in it.

Dance is also often used as a promotional form for a country's tourism; for example, many air-
ports use dance- or other peculiarities related to the destination's intangible heritage- to convey
a strong and positive first impression to visitors[8].

As previously mentioned, dance has always been the performance discipline with the most uni-
versal language. People of different cultures understand the body's movement, do not need text
or translation, and are easily adapted to site-specific contexts and non-purposeful places. It is,
after all, the mode by which each culture has begun to express itself since the earliest times.

It analyzes the categories of active tourists and professional dancers and the motivation to travel
changes. These individuals are not interested in visiting a particular destination as the opportu-
nity to explore it turns out to be eventual and marginal. The move is made to participate in small

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6       See Banio and Malchrowicz-Mośko (2019).
7       There are many examples of prestigious theaters and dance schools that are internationally known; think
        of La Scala in Milan, the San Carlo Theater in Naples, the Opera House in Rome, and even the Vagano-
        va Academy in St. Petersburg, the Royal Ballet School in London, the Operà Garnier in Paris, and the Jui-
        lliard School in New York.
8       See for example: World Dance Heritage Organization (n.d.).

competitions that are part of minor and amateur circuits or to take part in critical professional competitions that serve as a showcase for numerous artists. It is enough to do a brief search on the Internet to realize that many initiatives for young students and professionals are held yearly, especially in the summertime[9].

Indeed, the pandemic has been a critical moment of reflection on how to act effectively and efficiently on the economic meanings of the terms; it has provided an opportunity to rethink how dance and the performing arts are enjoyed.

The passion and desire to make a living from the arts have not died down; on the contrary, the pause to which the whole world has been forced has added further determination to the performing arts sector. In this, the cultural system and the tourism sector can and should be the key to progressive artistic-economic growth of the industry. Tourism could be a great source of income if only there were a greater focus on the dissemination and promotion of culture and awareness of the artistic offerings in our country.

Here, we would like to make people think about the evidence that if we subsidized the work of all the small artistic realities scattered throughout the territory if we highlighted the link that dance has with our culture, and if we worked to create events and manifestations linked to a specific territory, we would make an authentic quality brand for the category of dance and, more generally, of live performance. Implementing a well-structured artistic offer that is innovative, interactive, and attractive at the destination is necessary. At the same time, every single service and experience offered must be a reflection of the territory in which they are born to create a tourism product with a solid and inimitable identity. In this, the state, regions, municipalities, and DMOs with different means have a specific task to play and a fundamental role to play in the entertainment field, as well as a duty to support this industry. In particular, DMOs, given their more direct relationship with industry players and industries in the area, can facilitate the promotion and dissemination of initiatives related to the world of culture with its many facets. A quick analysis of the tourism promotion portals of major international destinations is enough to realize how theater occupies a vital role in destination marketing strategies and is placed prominently in the local tourism proposals of many countries and cities[10].

In conclusion, it would be necessary to focus not on single sporadic shows but on annual events circumscribed to a specific destination, organized and managed through managerial projects, to attract professionals and travelers, thus generating tourist flows to the area and reaping all the benefits.

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[10] To give some examples, see the tourist portal of the cities: of Sibiu City (n.d.); of Vienna Tourist Board (n.d.); of Visit Berlin (n.d.); of Go Tokyo (n.d.); of Visit London (n.d.).

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# Nurses and Technicians Returning from Labor Migration: Survey on Migration Motivational Factors

Maja Vizjak[1]  

**Abstract:** *The migration of middle and senior medical staff, which includes nurses and technicians, is an important topic because we are thinking about the sustainability and stability of the health system. Motivational factors of job satisfaction, working environment and living standards, if they result in dissatisfaction as a consequence of not meeting them, are key factors in making migration decisions. This work aims to confirm the factors of migration of nurses and technicians through a survey questionnaire. The interviewees cited personal challenges as the main reasons for outward migration since they could not realize their ambitions in their working environment at the time, while the main motive for return migration was family and emotional ties. Scientific contribution: Point out the fact that the respondents had the support of their work and family environment when they decided to migrate, while at the time when they were working abroad and made the decision to return to their homeland, their superiors started negotiations regarding their stay.*

## 1. INTRODUCTION

Social and professional position, preferred destinations, motivation, transnational networking of the place of origin, family migration history and forms of social ties of potential migrants form the fundamental variables of the decision to migrate, and the perception of one's own situation and personal motivation become the most important factors (Jurić, 2017). According to Kavain (2022), the attractive factors are: family, familiar environment, stay for application, and climatic factors. The pushing factors are: financial difficulties, the problem of housing, the mismatch between education and the labor market, poor working conditions, the political situation in the country, and uneven economic development of the regions. Changes in intention may result from occurrences or changes such as economic changes and changes in migration policies or individual factors such as skills, abilities, and family-related events (Geurts & Lubbers, 2017). Research suggests that maintaining ties with the home country through regular visits or remittances can significantly increase the likelihood of return. In contrast, ties to the destination country, such as owning real estate or a domestic partner, are negatively associated with the intention to re-emigrate (Wanner, 2021). Labor goes where it is lacking, while quality goes in the opposite direction (De Haas, 2010). Migration of medical personnel, in medical circles, is a situation that arises from the decision of a health worker to live in another country because of the special skills he possesses and the decision to achieve meaningful employment (Qi & Chimenya, 2015). Recruiting international nurses has been used for a long time to address the global nursing shortage (Aydogdu & Baykal, 2023). The negative effect of the emigration of nurses in middle- and lower-income countries is detrimental to the development of the health sector of the country of outbound migration (Kadel & Bhandari, 2019). The emigration of nurses leads to a decline in international competitiveness due to the loss of skilled labor, which affects the local threshold for basic wages (Yakubu et al., 2022). The continuous emigration of the nursing workforce to developed countries can lead to the loss of

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tax revenues and critical workforce that will negatively affect the promotion of health sector development (Sterud et al., 2018). As nurses emigrate to developed industrialized economies, a vacuum is created in their home countries, leading to an insufficient number of professionals to cope with the already impoverished health situation (Diema Konlan et al., 2023). The quantitative results of the research on the migration of nurses revealed that this population has the desire for higher education, career development and improvement of the quality of life as the main motivation for migration. Participants indicated that they were well supported during the initial application and arrival phase, however, they experienced a degree of challenge during workplace integration that included fluctuating levels of support and being appointed to jobs that did not match their years of experience and previous qualifications (Pressley et al., 2023). Dequalification associated with the continued non-use of acquired skills meant that some had to wait between 2 and 10 years before securing a suitable job (Wojczewski et al., 2015). Concluding bilateral agreements and introducing the World Health Organization (WHO) Code of Practice on International Recruitment, it aims to limit the active recruitment of health workers from poor countries in order to protect against the loss of qualified health workers (WHO, 2020).

Topics related to the migration of medical personnel are of vital importance for the maintenance of the system and occupy more and more media space. Outbound migration topics are preferred in public discourse, while those that promote return migration are ignored. It is important to promote ideas about returning to the homeland and build a positive image of return migration because this is precisely the way to rehabilitate the health sector. This paper aims to highlight the factors of return migration from work abroad. Table 1 shows the number of outgoing and incoming migrations of nurses and technicians by year.

**Table 1.** Number of issued requests for going to work abroad, nurses and technicians 2013/2022. and incoming migrations

| Year | Request issued | Number of incoming migrations |
|------|---------------|-------------------------------|
| 2013 | 49 | 91 |
| 2014 | 339 | 64 |
| 2015 | 529 | 49 |
| 2016 | 491 | 33 |
| 2017 | 359 | 30 |
| 2018 | 336 | 32 |
| 2019 | 282 | 33 |
| 2020 | 236 | 21 |
| 2021 | 236 | 21 |
| 2022 | 215 | 17 |

**Source:** Column issued requests, data obtained from the Chamber of Nurses; column number of incoming migration data obtained from the Ministry of Interior (diaspora returnees, holders of citizenship)

## 2. RESEARCH METHODOLOGY

The empirical part of the research was done using the questionnaire method, and the focus group was employees with secondary and higher education in healthcare, i.e. nurses and technicians who returned from work migration to their home country where they live and work in the profession today. Participation in the survey was voluntary, and the inquiry was sent to all regional chambers of nurses who further suggested potential persons suitable as a sample for the research. A total of 11 nurses and technicians who returned from labor migration responded. The research was conducted during 2023 (Table 2).

**Table 2.** Regional branches of the Chamber of Nurses and Technicians

| Branch office | Number of returnees from labor migration |
|---|---|
| Zagreb | They have no records |
| Ličko - senjska | No one came back |
| Brodsko - posavska | No answer |
| Dubrovačko - neretvanska | No one came back. |
| Karlovačka | 1 returnee |
| Koprivničko - križevačka | They have no data |
| Bjelovarsko - bilogorska | No answer |
| Istarska | 1 returnee |
| Krapinsko - zagorska | They have no records |
| Međimurska | No answer |
| Osječko - baranjska | 2 returnees |
| Požeško - slavonska | 6 returnees |
| Pirmorsko - goranska | 1 returnee |
| Sisačko - moslovačka | No answer |
| Splitsko -dalmatinska | No answer |
| Šibensko - kninska | They have no information |
| Varaždinska | 1 returnee |
| Virovitičko - podravska | No answer |
| Vukovrsko-srijemska | No one came back |
| Zagrebačka | No answer |
| Zadarska | No one came back |

**Source:** Own research

## 2.1. Analysis of the Survey Questionnaire

Demographic characteristics of respondents:
- 82% women and 18% men,
- 60% of respondents are aged 26-35,
- 82% of secondary education.

**Table 3.** Other characteristics of the respondents

| | During migration | After migration |
|---|---|---|
| **Work experience** | 63% had less than 5 years of work experience | 55% have 11-25 years of work experience |
| **Marital status** | 45% got married and had children | |
| **Workplace** | 45% Work in social institutions (homes for the elderly and infirm) | 72% Secondary health care |

**Source:** Own research

The respondents state that they worked in accordance with their professional training during migration and after returning from work abroad they remained in their profession, which is important to emphasize because many labor migrants, after going to work abroad due to lack of language skills, accept various jobs and do not they remain working in their profession (Tables 4,5,6).

**Table 4.** The workplace was in accordance with the professional qualification before migration

| | Percentage of respondents |
|---|---|
| The position was in accordance with the professional qualification | 72% |
| The position was not in accordance with the professional qualification | 28% |

**Source:** Own research

**Table 5.** The workplace was in accordance with the professional qualification
at the time of migration

|  | Percentage of respondents |
|---|---|
| The position was in accordance with the professional qualification | 82% |
| The position was not in accordance with the professional qualification | 18% |

**Source:** Own research

**Table 6.** The workplace was in accordance with the professional qualification after returning
from work abroad

|  | Percentage of respondents |
|---|---|
| The position was in accordance with the professional qualification | 91% |
| The position was not in accordance with the professional qualification | 9% |

**Source:** Own research

Satisfaction with socioeconomic status before during and after migration is partial, so financial motives are not the main reasons for migration (Tables 7,8,9).

**Table 7.** Satisfaction with socioeconomic status before migration

|  | Percentage of respondents |
|---|---|
| Respondents are satisfied with their socioeconomic status after returning from work abroad | 9% |
| Respondents are partially satisfied with their socioeconomic status after returning from work abroad | 64% |
| Respondents are not satisfied with their socioeconomic status after returning from work abroad | 27% |

**Source:** Own research

**Table 8.** Satisfaction with socioeconomic status during migration

|  | Percentage of respondents |
|---|---|
| Respondents are satisfied with their socioeconomic status after returning from work abroad | 36% |
| Respondents are partially satisfied with their socioeconomic status after returning from work abroad | 64% |
| Respondents are not satisfied with their socioeconomic status after returning from work abroad | 0 |

**Source:** Own research

**Table 9.** Satisfaction with socioeconomic status after returning from work abroad

|  | Percentage of respondents |
|---|---|
| Respondents are satisfied with their socioeconomic status after returning from work abroad | 18% |
| Respondents are partially satisfied with their socioeconomic status after returning from work abroad | 64% |
| Respondents are not satisfied with their socioeconomic status after returning from work abroad | 18% |

**Source:** Own research

Possibilities for training and advancement before, during and after migration, the respondents point out the many opportunities for training and advancement while working abroad, and the lack of them in institutions in Croatia (Tables 10, 11, 12).

**Table 10.** Opportunities for training and advancement before migration

|  | Percentage of respondents |
|---|---|
| No opportunities for improvement and advancement after returning from work abroad | 18% |
| Minimal opportunities for training and advancement after returning from work abroad | 46% |
| Partial opportunities for improvement and advancement after returning from work abroad | 18% |
| Many opportunities for improvement and advancement after returning from work abroad | 18% |

**Source:** Own research

**Table 11.** Opportunities for training and advancement during migration

| | Percentage of respondents |
|---|---|
| No opportunities for improvement and advancement after returning from work abroad | 0 |
| Minimal opportunities for training and advancement after returning from work abroad | 0 |
| Partial opportunities for improvement and advancement after returning from work abroad | 27% |
| Many opportunities for improvement and advancement after returning from work abroad | 73% |

**Source:** Own research

**Table 12.** Possibilities for training and advancement after returning from work abroad

| | Percentage of respondents |
|---|---|
| No opportunities for improvement and advancement after returning from work abroad | 18% |
| Minimal opportunities for training and advancement after returning from work abroad | 9% |
| Partial opportunities for improvement and advancement after returning from work abroad | 54% |
| Many opportunities for improvement and advancement after returning from work abroad | 19% |

**Source:** Own research

The majority of respondents state that the main reason for migration is a personal challenge and that abundance and emotional connections are the main reasons for returning from work abroad (Tables 13 and 14).

**Table 13.** The main reason that encouraged migration abroad

| | Percentage of respondents |
|---|---|
| Financial motives | 34% |
| Greater opportunities for advancement | 8% |
| Political reasons | 0 |
| A personal challenge | 50% |
| Because abroad is better! | 8% |

**Source:** Own research

**Table 14.** Main reason for returning from work abroad

| | Percentage of respondents |
|---|---|
| Family and emotional ties | 50% |
| Property and resolved housing issue | 17% |
| Impossibility of further advancement | 0 |
| In a foreign country, the respondent always felt like a foreigner | 11% |
| The respondent has never thought about finally moving abroad | 22% |

**Source:** Own research

## 2.2. Analysis of open questions in the survey

Respondents were offered four questions in the form of an interview, they were asked to briefly describe their migrant story, they were also asked about the influence of the environment at the time they made the decision, about the influence of the environment when they decided to return to their homeland. In response to their personal stories and motivational factors, they state the network of emotional relationships, that one of the partners was already in migration and they subsequently joined them. The idea of changing the environment and getting to know something new and spreading knowledge and experience was equally attractive to them.

– *When you made the decision to go to work abroad, did your colleagues and superiors in the work environment support and encourage you in that decision?! That family and friends supported you?*

The environment supported them in their decision to migrate.

– *When you made the decision to return from work abroad, did your foreign colleagues and superiors in the work environment try to talk you out of that decision? They offered you better working conditions, a promotion, a raise?*

Their superiors further motivated them not to leave the work team.

– *Today, you encourage your younger colleagues to migrate (shorter or longer) in order to gain new knowledge and experience, because you think that experience is significant in personal and professional development? Temporary migration yes, but not permanently, because you are always a foreigner in a foreign country!*

The respondents emphasize in their answers that they do not encourage long-term migration, but support leaving with the aim of remembering new knowledge and experience.

## 3. CONCLUSION

The focus group of this research are gardeners from labor migration, nurses and technicians. Today, they are family people with more than 10 years of work experience, at the time of labor migration they were younger, up to 35 years of age, and were not married and had no children, with less than 5 years of work experience, motivated to migrate by partial satisfaction with their socioeconomic status and minimal opportunities for advancement. They cite personal challenge and financial reasons as the main factors of outbound migration, and family reasons and the fact that they had no vision of a permanent stay abroad as the main factor of return migration. Respondents state that at the time when they decided to migrate out, the environment supported them in that intention, while at the time when they decided to migrate back, the environment tried to motivate them to stay by offering them raises and better working conditions, and hinted that they are willing to receive back if they decide to return. Today, none of the interviewees encourages their younger colleagues to go on long-term outbound migrations, but targeted and time-limited ones as opportunities for personal development and the acquisition of new knowledge and skills. This paper aims to highlight the importance of taking care of the motivational factors of human potential, which the interviewees pointed out as a pattern of behavior of the management staff of the institutions where they worked during labor migration.

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# Natural Risks in Albania (Public Perception)

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**Abstract:** *Albania is located in the south-eastern part of Europe, in the western part of the Balkan Peninsula. The geographical position and natural conditions have favoured various natural hazards. This study aims to identify natural hazards and their impact in Albania as well as their distribution and consequences according to the public perception. Using the GoogleForms platform, was created a questionnaire which was completed by 364 people. Through their analysis, it was concluded that the public in general knows the natural hazards that affect Albania and the area of their spread, they have also determined the possibility of occurrence of hazards according to the regions of Albania. The respondents have identified that they do not have information on risk management and would like to be trained for it. The study of natural hazards would influence the design of policies for their management for sustainable development.*

## 1. INTRODUCTION

Natural disasters pose significant challenges worldwide, affecting diverse regions in distinct ways. Developed countries like Japan, the United States, France, and Switzerland, despite their progress, still face these risks and have paid special attention to their management. On the other hand, countries like Bangladesh, India, China, Guatemala, Colombia, and Mexico face more frequent and more dangerous natural disasters. In Asia and Latin America, landslides and other hazards related to earthquakes, cyclones, tropical storms, and typhoons have a significant impact (Alcántara-Ayala, 2002). In Japan, in 1983, there were about 5,000 landslides, collapses, and rock falls, resulting in around 330 fatalities and damages of about 4 billion US dollars (Sala & Qiriazi, 2005). In Europe in 1999, damages from geomorphological hazards were estimated at around 600 million US dollars (Sala & Qiriazi, 2005). Records of natural disasters between 1900 and 1999 show that 42% of these events occurred in Asia, 27% in America, 13% in Europe, 8% in Oceania, and 10% in Africa (Alcántara-Ayala, 2002). The earthquake off the coast of Sumatra with a magnitude of 9 on the Richter scale caused a tsunami with speeds of 500-700 km/h, devastating areas along the South and Southeast Asian coastlines. According to The World Bank (2005), this tsunami resulted in approximately 220,000 fatalities, thousands injured, and significant material damage. Disaster management is a complex challenge, and prevention is also essential to minimize potential consequences. According to the World Bank (2005) estimated damages were around 6 billion dollars for Indonesia, Maldives, and Sri Lanka. In 1984, as a result of continuous droughts in Ethiopia and Sudan, approximately 450,000 people lost their lives. Every year, hundreds of natural disasters occur worldwide. Earthquakes, floods, droughts, and other natural hazards result in hundreds of thousands of deaths, injuries, and billions of dollars in economic losses globally. Approximately 38% of the Earth's surface is exposed to some level of drought risk. The most flood-prone areas cover 9% of the surface, with more than 2 billion people affected. These regions include the coastlines of the United States,

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Central America, South America, Europe, East Africa, Bangladesh, China, the Korean Peninsula, Southeast Asia, Indonesia, and the Philippines. In an area of 3 million km², inhabited by more than 300 million people, seismic risk is relatively high. From these data we understand that important parts of the Earth are affected by various natural risks, their study will influence the design of strategies for taking measures to avoid or minimise their consequences.

## 2. STUDY AREA

Albania is located in the southwestern part of the Balkan Peninsula in Southeastern Europe. It shares borders with Montenegro to the northwest, Kosovo* to the northeast, North Macedonia to the east, and Greece to the south. The total land area of Albania is 28,748 km². Its borders consist of various types: 658 km are land borders, 316 km are maritime borders, 72 km are lake borders, and 48 km are river borders (Qiriazi, 2019). Albania serves as a crucial crossroads for both short and major international trade routes connecting Eastern and Western Europe, as well as Northern and Southern regions (Jashiku & Kreka, 2020). These primary east-west highways link Southern, Western, and Central Europe with Southeastern Europe, Near Asia, and the Far East. Albania stands out due to its highly complex geological structure and remarkable diversity. Geologically, it represents a unique intersection for interpreting the various lithological and structural features of the Balkans and the Alpine-Mediterranean Belt (Xhomo et al., 2002). Consequently, it is considered an open-air laboratory. The geological formations in Albania encompass three major groups: sedimentary, magmatic, and metamorphic, spanning from the Paleozoic to the Quaternary era Albanides, which represent the main geological structures in the territory of Albania, are part of the Alpide belt (Qiriazi, 2019). These structures lie between the Dinarides in the north and the Hellenides in the south, within the Mediterranean belt (Xhomo et al., 2002). The relief of Albania is predominantly hilly and mountainous. A noticeable characteristic is the gradual decrease in elevation from east to west, resulting from the evolution of the terrain. In this transition, the landscape changes from rugged mountains and mountain ranges to hills and plains. The average elevation of Albanian relief is 708 meters above sea level, approximately twice the European average. Albania exhibits a significant range in elevation: the maximum relief height reaches 2751 meters (Mount Korab), while the minimum is - 8 meters (Tërbufi) (Qiriazi, 2019). This substantial elevation range has influenced the formation of climatic, hydrographic, land, and vegetation features, as well as the overall relief shaping. Albania is part of the Mediterranean watershed and exhibits distinct features of Mediterranean hydrography. These features express the diversity of water bodies, including Seas, Lagoons, Rivers, Springs, Lakes, Subterranean waters, Water sources, etc. (Eftimi, 2010; Pano, 2015).

In the mountainous and semi-mountainous areas with significant relief energy, characterized by generally less descriptive formations, there are numerous small rivers. Conversely, in the limited lowland areas, conditions are minimal for the formation of large rivers. Nevertheless, the largest rivers in Albania (Drin, Seman, and Vjosa) simultaneously serve as major hydrographic arteries in the Western Balkans. Albania has a Mediterranean climate, distinguished by pronounced seasonal variations in solar radiation, atmospheric circulation, temperature, precipitation, and more. Generally, winters are mild and humid, while summers are hot and dry. The climate stands out, especially in recent decades, due to significant weather fluctuations and variations in all climatic elements (Zorba, 2007). According to the Meteorological Institute, the annual temperatures fluctuate from 7 degrees Celsius in the northern mountainous areas to 16-17 degrees C in the coastal area, the lowest absolute temperature was recorded as -25.8 degrees

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\* Under the UN Resolution 1244.

C, while the highest was 43.9 degrees C. Albania has a high diversity of terrestrial and marine ecosystems and habitats, which are an integral part of the Mediterranean and Balkan natural ecosystem chain. Additionally, Albania boasts a high diversity of terrestrial and marine ecosystems and habitats, which are integral parts of the Mediterranean and Balkan natural ecosystem chain. Risks that affect Albania the most, causing serious consequences, are floods, earthquakes and extreme temperatures, followed by epidemics, storms, landslides, fires, droughts, etc. About 58 devastating earthquakes have occurred in the territory of Albania (Aliaj et al., 2010). The earthquake of 1851 in the area of Vlora, Berat caused about 2000 deaths, other strong earthquakes have caused great consequences for Albanians in 1905, Shkodër (Eduard & Siasi, 1975, p. 55); 1911- Ohrid, (Eduard & Siasi, 1975, p, 55); 1920- Tepelena (Eduard & Siasi, 1975, p. 55); 1960- Korça, (Eduard & Siasi, 1975, p. 55); 1967- Librazhd- Diber- Skopje (Eduard & Siasi, 1975, p. 55); 1979-Shkodër (Muço, 1996, p. 55); 2019- Durrës- Tirana with great destruction, economic damage and 51 dead. In 1952 there were 136 cases of wildfires, the most affected areas were Lezha, Erseke, Skrapar Berati, Tirana, Përmeti, and Gramshi. In the year 1965, there were 52 fire incidents. In 1975 there were 164 cases of fire. In the year 2000 there were 550 cases of fire (UNDP, 2003). Big fires happened in 2003, 2007, 2010, 2018, 2019, 2022 and 2023 which cost the Albanian economy thousands of dollars. The heavy rains have caused significant flooding, especially in the Western Region of Albania from the rivers Drinos, Vjosa, Osum, etc. where the most affected areas were Shkodra and Lezha (Isidorov, 1955, p. 34). According to Meçaj (2003), the years with the biggest floods were 1905, 1916, 1927, 1937, 1946, 1962-63, 1970-1971, 1981, 1997, 2001. There was considerable economic damage, especially in the years 1962-1963, 1971 and 1999 (Meçaj, 2003, p. 76). Lithological and climatic conditions have favored and closed Landslides where the most affected areas are: Moglica, Kepi i Rodoni, Mali i Durrës, Shkodër, Kukës, Lunxëri, Skrapar, Mirditë, Librazhd (Sala & Qiriazi, 2005, p. 20). Regularly, the territory of Albania is affected by hail storms, extreme drought, frost and strong winds, which have various consequences, especially for the booming economy.

## 3. PURPOSE AND METHODOLOGY

The purpose of this study is to examine natural risks and people's attitudes toward the level of natural risks in Albania, as well as their management. The research aims to provide insights into risk perception, communication and preparedness related to natural risks in the country. The study highlights the importance of effective communication and risk reduction strategies to increase Albania's resilience and minimize the impact of natural risks.

Research questions:
- What are the natural risks in Albania?
- How is the level of risk perceived by the public in Albania?
- How does public awareness affect risk management?

This study employed a combination of literature review, quantitative data collection, and qualitative analysis. A survey questionnaire consisting of 25 questions was developed using the Google Forms platform. The questionnaire was distributed to a random sample of 500 persons, and 364 respondents completed it from different administrative units of Albania during the period September 2023 and February 2024. The questionnaire designed for the paper was organized into four parts, where the first part had 5 questions about general information (gender, age, education, employment, country), the second part (12 questions) regarding the perception of risks in Albania and the level of natural risk affecting Albania for different types of risks, the third part

focused on people's information about natural risks (4 questions), and the fourth part was questions about the management of natural hazards (4 questions). The collection and processing of data will highlight the community's perception of risks, their level and management, and findings that are of great importance for risk management and sustainable development.

## 4. DISCUSSIONS AND RESULTS

The gender distribution shows that 60% of the population is female, while 40% is male. The majority of the respondents belong to the young age group from 18 to 45 years old with 58% and 42% over 46 years old. The majority of the respondents have a university education, 81% of them, secondary education 12% of them, and primary education 7% of them.
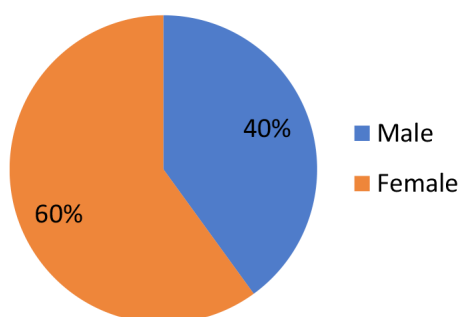


**Figure 1.** Gender of the respondents
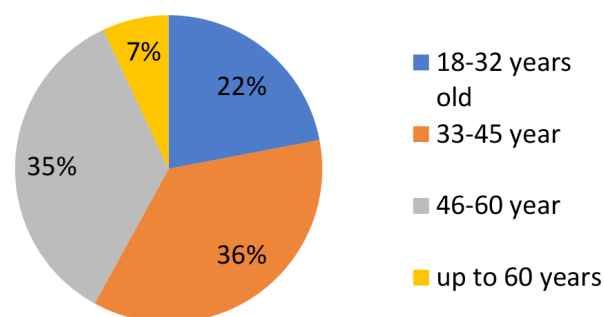**Source:** Own research



**Figure 2.** Age of the respondents
**Source:** Own research

The distribution shows that most of the respondents are employed in the public sector with 47% and the private sector with 27%, the rest are self-employed, students and pensioners.
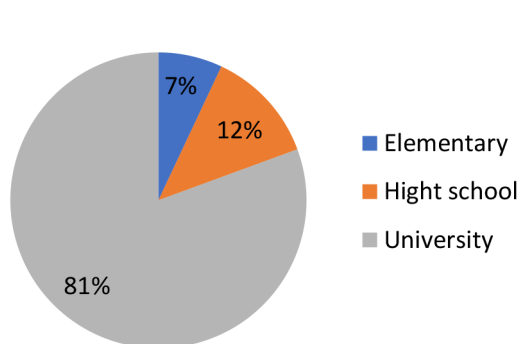


**Figure 3.** Education of the respondents
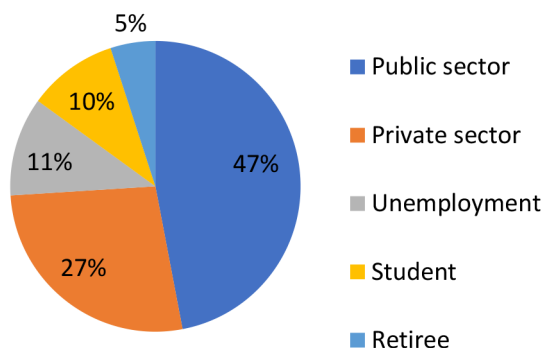**Source:** Own research



**Figure 4.** Employment of the respondents
**Source:** Own research

According to the respondents, most of them live in Korça, Tirana, Elbasan, Lezhë, Durrës, Berat and Shkodër administrative units, the other units occupy a smaller percentage of the respondents. Asked to rank the risks that most affect the territory of Albania, the respondents ranked these 5 risks in the following order: 1. Floods, 2. Earthquakes, 4. Fires, 4. Hail and the fifth drought, then they also mentioned the frosts, snow, strong winds and avalanches. Asked "Which of Albania's regions is most affected by natural hazards; majority of the respondents, 34.5%, answered that the region most affected by natural hazards is the Northern Region; 31% answered the Western Region; 20% the Central Region; 11% of them answered that the south-eastern region and only 5.5% answered that they do not know which part of Albania is most affected by natural hazards.
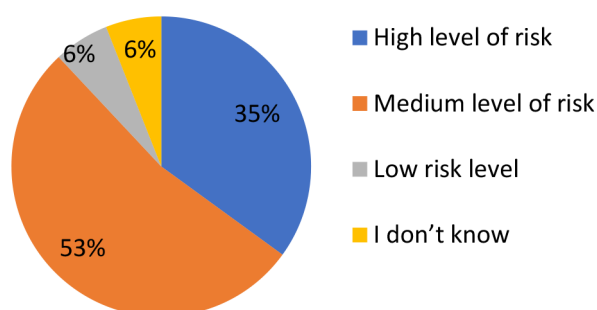
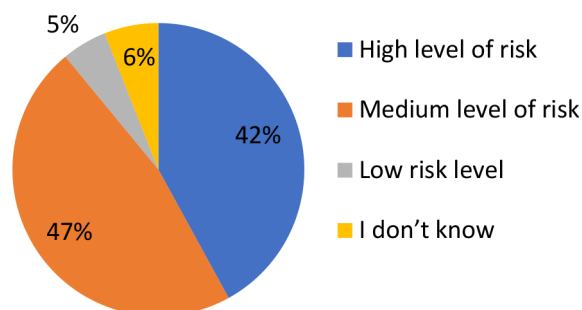**Figure 5.** Level of risk from earthquakes
**Source:** Own research



**Figure 6.** Level of risk from floods
**Source:** Own research

According to the question about the level of risk from earthquakes in Albania, the majority of respondents (53%) answered that Albania has an average level of earthquake risk, 35% of them answered that Albania has a high earthquake risk and 6% of them have answered that there is a low level of risk and they do not know what level of risk Albania has from earthquakes. Asked about the risk of floods in Albania, the majority of respondents (47%) answered that Albania has an average level of flood risk, 42% of them answered that Albania has a high level of flood risk; 6% of them answered that they do not know what level of risk Albania has from floods and 5% of them answered that Albania has a low level of risk from floods.
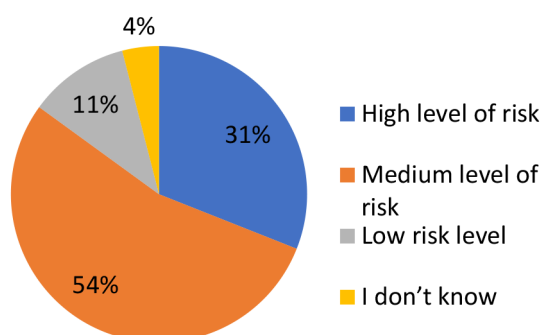


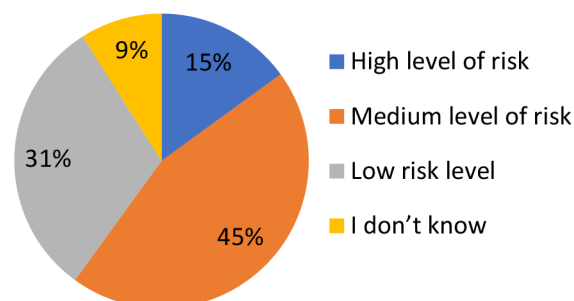**Figure 7.** Level of risk from wildfires
**Source:** Own research



**Figure 8.** Level of risk from landslides
**Source:** Own research

Asked what level of risk Albania has from the wildfires, the majority of the respondents answered that Albania has an average level of risk, 54% of them, 31% think that Albania has a high level of risk for being affected by wildfires; 11% answered that Albania has a low risk level for being affected by fires and only 4% of them answered that they do not know what level of risk Albania has from wildfires. Asked "What is the level of risk from landslides in Albania, the majority (45%) of them answered that Albania has an average level of risk from landslides; 31% of them answered that Albania has a low level of risk from landslides, 15% say that Albania has a high level of risk and 9% do not know what level of risk Albania has from landslides.

Regarding the question of what level of risk Albania has from hail, the majority of respondents (50%) answered that Albania has an average risk from hail, and 25% think that Albania has a high level of risk of being affected by hail. 22% of them think that Albania has a low level of risk and only 3% of them do not know what level of risk Albania has for being affected by hail. At the question "What is the level of risk in Albania from strong winds?", the majority of the respondents 44% of them answered that Albania has an average level of risk of being affected by

strong winds, 43% think that Albania has a low level of risk of being affected by strong winds, 7% of the respondents do not know what level of risk have the strong winds for Albania and 6% think that Albania has a high level of risk from strong winds. Even in the questions about the degree of risk for heavy snow, heavy rainfall, drought and frosts, the majority of respondents respectively: 44.2% for heavy snow; 52.2% for heavy rains, 48.1% for drought and 48.1% for frost answered that Albania has an average level of risk from these natural disasters. Only for avalanches, 65.7% of respondents think that Albania has a low level of risk from them, and this even though Albania is a mountainous country with steep slopes and a continental climate with the possibility of their formation, cases of avalanches have been rare, especially in recent years, where the amount of snow that has fallen on the territory of Albania has been low compared to previous years. According to the question, "Do you have enough information on natural risks in Albania?, the majority of the respondents, 51% of them, answered no; 33.5% of them answered yes and 15.5% of them answered that they do not know if they have enough information about natural risks in Albania. The respondents who answered that they have sufficient information about natural risks in Albania have listed in order these sources that have influenced their information about risks: the first is the media, the second is social networks, the third is the school curriculum and the fourth is the family. This shows that the media and social networks are now good distributors of any kind of information. Asked if they have participated in any civil defense training, the majority 92% of them answered no, and only 8% answered yes. Asked if they would like to participate in civil defense training in case of natural disasters, 63% of the respondents answered yes; 24% answered I don't know and 13% answered no. For some of the problems on information and management of natural risks, the respondents have listed 3 of the main ones: The first: a lack of information from different institutions related to natural risks. The second: is awareness of the population and the third: is low information in the school curriculum regarding natural risks. In the question to list the institutions responsible for risk management, the respondents listed the Ministry of Environment in the first place, the Local Government and the Committee of Experts for risk management in the second place. When asked who should manage natural risks, they again listed the three institutions mentioned above: the Ministry of Environment; Local government; and the Committee of Experts on Risk Management. Asked how important the public sees the cooperation between Albania and other countries for the management of natural disaster situations, the majority 72.5% see this cooperation as very important, 18% see it as moderately important, 5% see it as a little important and 2.5% answered they do not see this cooperation as very important.
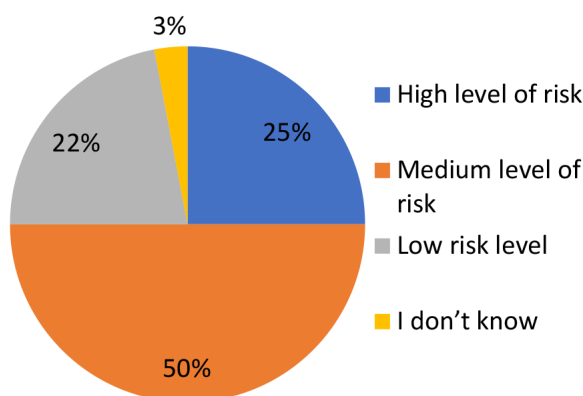


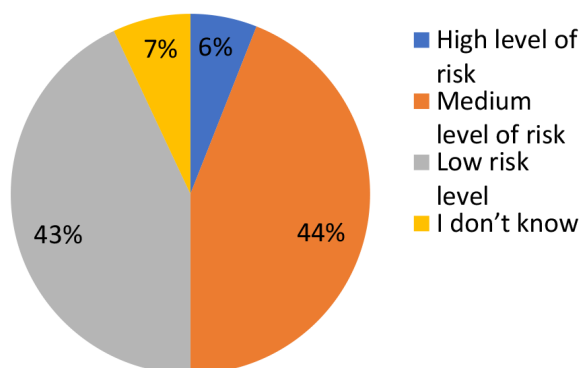**Figure 9.** Level of risk from hail
**Source:** Own research



**Figure 10.** Level of risk from strong winds
**Source:** Own research

## 5. CONCLUSION

Albania is located in an active seismic region. Consequently, strong earthquakes are a recurring threat. These seismic events lead to loss of life, property damage and disruption of economic activities. Flooding occurs frequently in Albania's territory, especially in the lower reaches of rivers. Human interventions, such as deforestation and urbanization, contribute to this phenomenon. These floods result in significant economic losses, affecting infrastructure, agriculture and livelihoods. Frost, strong winds, hail, snow and avalanches: these weather phenomena affect different regions of Albania. They disrupt transportation, disrupt electricity supplies, and cause crop destruction. Landslides often affect major road networks, leading to accidents and traffic difficulties. Albania has a comprehensive legal framework that addresses natural hazards. These regulations cover disaster preparedness, response and recovery. However, effective implementation remains a challenge due to various factors, including limited resources and coordination issues. Albania has developed strategies for managing natural hazards. These include early warning systems, land use planning and community resilience programs. Despite these efforts, gaps persist in risk reduction and preparedness. Our research reveals that a significant portion of the population lacks essential information about the distribution and characteristics of natural hazards. This deficit prevents effective risk mitigation. Specific hazards, such as earthquakes, floods and landslides, remain poorly understood by many Albanians. The study highlights the critical role of information sources. Reliable and accessible channels are essential for disseminating knowledge about natural hazards. Public awareness campaigns, educational programs and media outlets play a key role in conveying accurate information. The questionnaire data highlight the necessity of active communication. Engaging with the public through various means - such as community meetings, workshops and online platforms - is vital. Timely alerts, risk advisories and educational materials contribute to better risk perception and preparedness. Effective risk communication requires cooperation between different organizations and institutions. These entities must be trusted by the population to ensure credibility. NGOs and local authorities must work together to create a unified message and foster public trust. To reach different audiences, we propose organizing open awareness lectures. These sessions can target schools, universities, community centers and workplaces. By engaging with students, professionals and community members, we can raise awareness, promote risk education and encourage proactive measures.

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# Informal Formality of Peripheral Society in Albania

**Alfred Halilaj**[1]

**Abstract:** *After the 1990s, Albanian society gained a fundamental right: The right to movement. Researchers, public speakers, politicians, and the state itself have at times characterized this newfound freedom as urban degeneration, portraying those who exploit this opportunity as anti-establishment. While the right to free speech has not been questioned in the new democratic framework of Albania, it is scientifically naive to interpret this discourse without considering the social, economic, political, and urban realities. The movement of people has always been a fundamental aspect of human life, and in contemporary terms, society operates largely in a state of continuous "informality." This paper aims to explore the informal reality of settlement in three dimensions: a) public articulation, b) economic implications, and c) urban conditions. A key focus of this paper is to examine the often-overlooked benefits of this 'informal' formality in urban development. The peripheries of Albanian cities should not be viewed as urban ghettos; rather, they represent a dynamic force of human action that has catalyzed significant changes in the economic, political, and social fabric (structure) of urban areas.*

## 1. INTRODUCTION

Since 1990, Albanian society has undergone profound transformations. One of the most significant aspects of this change is internal migration, which has reshaped Albanian cities and even affected rural areas, though the latter phenomenon remains understudied. It is crucial to note that this massive population movement during this period was neither directed nor controlled by the state. If we define "formal" recognition as state acknowledgment and regulation of social phenomena, then in the case of population movement, the state has failed to fulfill its role in legitimizing this process. However, this does not render the movement of citizens informal; rather, it has been a public act characterized by transparency, even in moments of mass migration, indicating either a blind eye turned by the state or its inability to impose control, thus allowing citizens to take the initiative.

This demographic redistribution has primarily flowed from the northern mountainous regions toward the coastal areas and urban centers, particularly in the Tirana-Durres corridor, which has evolved into a hub for industry and services. This region accounts for a significant proportion of the urban population while surrounding areas have become home to thousands of migrants. The new geography of opportunities, emerging in contrast to central planning, aligns with market dynamics, revealing a wave of seemingly spontaneous yet instinctive movements that respond to practical needs (World Bank Report, 2007).

In this context, citizens, driven by cultural constructs of space, urban environments, and human relationships, have redefined their realities, establishing dwellings and forming communities. In the absence of regulation, it is unrealistic to expect adherence to urban or aesthetic standards. It

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is essential to recognize the Albanian culture of settlement, which has facilitated the establishment of critical community infrastructure such as roads, access to clean water, sewerage systems, and land borders.

## 2. PUBLIC ARTICULATION

Inhabitants of suburban areas face not only the challenges of changing living conditions in the absence of resources but also the stigma and labeling that accompany these changes. Researchers, public speakers, politicians, and the state have often depicted this new opportunity as a form of urban degeneration, branding those who seize it as anti-establishment individuals who have overrun the cities. Throughout the years, derogatory terms have frequently surfaced, including "Chechens," "highlanders," "dirty-headed people," "barbarians," "vandals," and "Alpines". These labels not only categorize individuals based on perceived behaviors but also associate them with regions that symbolize backwardness and adherence to archaic codes.

To illustrate the phenomenon of migration, terms such as "Bathore," "concreting," "urban degeneration," "urban ghettos," and "rural peasantry" have been used. Many researchers have engaged with labeling theory in sociology, suggesting that deviant behavior is socially constructed. Howard Becker notes that "deviance is not a quality of the person who commits an act; rather, it is a consequence of the application of rules and sanctions by others against a rule violator. A deviant is someone to whom such labeling has been successfully applied" (Becker, 1963).

This premise highlights the potential for labeling to prioritize deviance, prompting individuals to react against such stigmatization by initially engaging in deviant acts, thereby opening the door to a collective identity as deviants. When a group facing similar circumstances rejects labeling, it represents a natural reaction. This public articulation is not only socially and practically harmful but also scientifically inaccurate, a point emphasized by scholars who criticize this framing.

Political parties have adopted varying stances over time. For instance, the Democratic Party, under former Prime Minister Aleksander Meksi in 1995, opposed the settlement of residents in Bathore, attempting to curb the mass migration of the population. Conversely, the Socialist Party initially opposed the movement but oversaw the largest influx of migrants during its tenure from 1997 to 2005. It appears that both political factions tacitly agreed on this migration trend, despite publicly framing their positions for political advantage. Notably, political discourse has focused on short-term solutions aimed at maximizing votes, **and** transforming parties into pragmatic entities (Lami, 2013). While pragmatism is not inherently negative, the tendency to exploit migration for electoral gain undermines national interests.

This dynamic has left residents of peripheral areas in a precarious position, forcing them to frequently change their political allegiances. One informant from the Kamza area remarked, "For us, they are all the same. How many times have they deceived us? But we vote for the ones who deceive us more because they promise more." This highlights how political pragmatism influences the behavior of local inhabitants, resulting in public-political realities that are often illusory and frustrating.

Given that suburban areas dominate not only the Tirana-Durres corridor but also nearly all Albanian cities, the political alignment of these residents is crucial in determining electoral

outcomes. This leads to the pertinent question: How effectively have political parties represented the will of the people in Albania over the past 25 years? The interplay of informal formalism and formal informality has created a complex landscape in Albanian politics.

## 3.   ECONOMIC DIMENSION

The debate surrounding local governments globally often centers on issues of local autonomy and economic development. The scope and powers of local governments vary significantly, as do the political and administrative roles of elected or appointed officials. However, across Western nations, local governments generally share certain core responsibilities, including public services such as education, infrastructure maintenance (roads), police, fire services, and waste collection. They also have the authority to levy taxes to fund these services. Financing mechanisms for local governments differ widely, with the share of local expenditure covered by grants from central governments varying considerably. In the U.S., for instance, grant aid is relatively minimal, and many cities impose sales, income, and property taxes. Access to services has often sparked fiscal crises and political conflicts, with the issue of suburban residents being particularly contentious.

Inhabitants of suburban areas do not form a homogeneous group; they differ culturally, economically, and socially (Fuga, 2004). Nonetheless, in recent years, suburban residents have emerged as a crucial force driving significant changes in the economic, political, and social structures of cities. A substantial portion of public sector employment is now situated within local governments rather than at the central level, a trend that continues to grow. As a result, local authorities have gained increased autonomy, shifting their focus from mere welfare provision to proactive local economic development policies. This approach has been influenced by American local governance models, which emphasize encouraging local investment, harnessing creative capacities, and adopting neo-Weberian concepts that suggest state bureaucrats and their organizations have vested interests in local politics (Savage & Warde, 1993).

Hypothetically, if we were to rewind to 1990 and project into 2016 with the same population distribution, the economic situation of cities would likely be dire. Regardless of how creatively one might imagine this scenario, the outcomes would be unfavorable, as these cities would lack the human capital essential for economic growth and development. Empty cities would resemble a flawed democracy. Purchasing power, goods movement, property capitalization, social mobility, and living standards would all be at alarmingly low levels, leading to economic degradation. Social energies would dwindle, resulting in cities characterized by a bureaucratic economy reliant on state buyers and sellers.

The critical question arises: Has the development of informal suburban areas contributed to the economic growth of cities? In the early 2000s, the non-governmental institute Co-Plan estimated that in the Municipality of Kamza, 95% of constructions were illegal and informal post-1990. Local communities reportedly invested at least $100 million in housing, business, and basic infrastructure between 1990 and 1999, while public investment during the same period was negligible, averaging about $100,000 per year (Aliaj, 2008). This investment underscores the substantial flow of money into these areas, and this trend has continued significantly up until 2020. Kamza has entered an accelerated development phase, positively impacting the growth of Tirana.

Social phenomena are inherently linked to society, which is a fundamental principle of sociology. The economy is a vital social phenomenon that evolves within this context. Statistical data reveals a dynamic year-on-year growth in cities experiencing population increases. However, numbers alone

do not capture the immense human energy that residents of suburban areas have infused into urban settings. The land market has enabled owners to sell or develop properties, leading to a substantial expansion in construction and a flourishing trade environment.

Despite the low official figures of the formal urban economy, the economic reality is markedly different due to the daily contributions of informal activities in suburban regions. A prime example is the Tirana-Durres corridor. In most countries, larger cities tend to be more productive due to the benefits of agglomerated economies. Metropolitan areas typically foster diverse production, and innovation in industry and services, and provide greater access to information and opportunities, attracting enterprises due to the extensive labor market and potential for idea exchange (Henderson et al., 2001).

The economic outlook could be further improved if challenges like public transport and associated costs were addressed more effectively. Research shows that physical proximity can enhance firm productivity. Additionally, the growing significance of technology tends to favor greater employee concentration (Gaspar & Glaeser, 1998).

Indications suggest that the economic informality of suburban areas has been a primary driver of the real economy. This dynamic should be distinguished from the misconception that these inhabitants are merely consumers; they have actively contributed to the nation's economy as taxpayers. The prevailing belief that residents do not pay for electricity, central and local taxes, and other state charges is misguided.

A prime example is the Municipality of Kamza, where data clearly shows a consistent increase in local tax revenues year after year. The same trend applies to electricity payments. However, there is a question of whether urban residents have been subject to tax evasion regarding electricity and other utilities, particularly concerning large businesses, factories, and companies. These entities cannot be compared to the payments or energy consumption of local residents. Even if we assume that these residents have not paid, the human energy they have contributed to the city has been vital for its development.

Another important aspect that legitimizes this informal economy is the presence of national and international financial organizations in these areas over the years. Institutions like the World Bank and CO-Plan, along with the state budget, have invested in infrastructure, schools, health centers, and more, thereby contributing to a formalized informality.

## 4. URBAN REALITY

Researcher Gent Kaprata has identified "big governments" as a significant problem contributing to chaotic urban developments in Albanian cities (Kaprata, 2020). Since 1990, Albanian society has gained a fundamental right: the right of movement. However, this mobility has often been poorly received and labeled negatively. While the right to free speech has been reaffirmed through the new democratic system, it is naïve to consider social, economic, political, and urban realities without context. The movement of populations has been a constant aspect of normal human life, and today, all human societies operate under a framework of ongoing informality. This is a historical fact.

Albanian society endured 50 years of centralized state planning across all sectors, with policies after 1960 designed to limit urbanization by keeping populations away from cities. The establishment of small towns and the development of large cities within designated boundaries became a

national priority. This included the issuance of national passports and identity cards, along with restrictions on employment, to keep people in rural areas. Thus, the right to free movement has transformed into a fundamental human right, though often mischaracterized as informal or impoverished. While many of these areas originate from some of the poorest regions of Albania, such as the northeast or southeast, the human energy they bring has been significant. In just a few years, they have transformed urban realities, turning settlements with makeshift structures into neighborhoods of beautiful villas.

It is also worth noting that the occupations of residents in these areas are diverse, including military personnel, teachers, lawyers, judges, and state officials, along with those who are self-employed or unemployed. Therefore, these areas cannot be classified as simply poor. Informal urban areas may initially appear anarchic and irregular, as they often exist outside the purview of the legal system. However, "informal" does not necessarily equate to lawlessness; many of these areas have evolved into centers of power (Bardhoshi, 2016).

The question of property is a critical point that warrants serious consideration. The history of property division and affiliation in Albania is complex. Under the Ottoman millet system, property rights were concentrated in the hands of a few individuals. The collectivization of property during the Communist era radically altered ownership structures. Following the collapse of communism, property laws became influenced by contemporary politics, leading to significant challenges for the rule of law. Law 7501, which allocated land per capita, and Law 7698, enacted on April 15, 1993, for property restitution and compensation, exemplify the complexities surrounding property in Albania.

The property issue deserves extensive examination; however, in relation to informal areas, a few notes are pertinent. Law 7501, in 1996, facilitated land distribution for use rather than purchase, although many users began selling their allocated land almost immediately. One year later, the law permitted ownership transfer, allowing for development or sale. It is crucial to highlight that the largest group of residents in informal settlements acquired land from rightful owners. The second group purchased land from older, indigenous owners during the implementation of Law 7501, while the third group—more often highlighted in public discourse—occupied land belonging to rightful owners. This group is relatively small compared to the others. The fourth category consists of those who have built homes on state land. Thus, despite the apparent chaos, informality operates within a framework of legal formality.

In cases of relocation, informality is not hidden. This movement is public and occurs openly, representing a transparent act by individuals or groups within their communities. A significant step toward formalizing the reality of informal settlements was the adoption of Law No. 9482 on April 3, 2006, "On Legalization, Urbanization, and Integration of Illegal Constructions." This law was developed with assistance from Hernando de Soto, a prominent advocate for the legalization of informal economies. De Soto argues that these areas, despite their challenging economic conditions, suffer precisely because they remain uncapitalized; they are not legally recognized by the state, which leads to various forms of lawbreaking. These assets are utilized by residents but exist outside the legal system, creating uncertainty regarding ownership, obligations, and mechanisms for fulfilling responsibilities for goods and services.

If these areas are legalized and integrated into the market, residents will overcome economic difficulties. Business revitalization will lead to economic growth, the elimination of the parallel

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economy, and, importantly, provide residents the opportunity to demonstrate their talents, enthusiasm, and skills—attributes that remain dormant until their property rights are legally recognized (De Soto, 2001). While the law has undergone several amendments, often influenced by political interests, its core remains the formal legal recognition of these areas.

## 5. FUTURE RESEARCH DIRECTIONS

A crucial issue is the urbanization of suburban areas, often labeled as an "Urban Massacre." When considering what damages the urban image more—grand palaces or the residential homes constructed by informal settlers—one must ask whether both types of construction violate the law equally. This debate is extensive, but it is clear that residents have formalized their common needs, which are essential for survival. Urbanization presents a challenge that requires courage and long-term solutions from the state. Currently, Albania is still far from the 63% urban population figure seen in Europe and Central Asia (World Bank Report, 2007). The administrative borders have remained largely fictitious (Mulita, 2013), while the inevitable urban expansion of cities towards suburbs designated as "informal" is becoming increasingly pronounced.

## 6. CONCLUSION

- Population movement cannot be fundamentally viewed as an act of "non-formality".
- Public and political discourse regarding peripheral areas is, at best, naive and, at worst, unscientific and politically incorrect.
- The urban economy has benefited and expanded due to the contributions from peripheral suburban areas.
- Legal formalization through the legalization law, inspired by Hernando De Soto, represents the initial step in which the state officially acknowledges and seeks to address this issue.
- Urbanization is a challenge that demands courage and well-thought-out projects to maximize the potential of existing conditions, aimed at long-term development.

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# The Impact of Leniency Policy on Private Enforcement of Competition Law: The EU Provisions and the Albanian Approach

**Monika Canco**[1]  🆔

**Abstract:** *The scope of this paper encompasses an analysis of the leniency policy introduced by the European Union (EU) public enforcement of competition law and its interaction with private enforcement of competition law, particularly focusing on the approach and challenges of Albania as an EU candidate country.*

*The purpose of this study is to examine the nature, characteristics, and effectiveness of the EU leniency policy within the context of competition law enforcement. It investigates how the leniency policy affects private enforcement of competition law, particularly in relation to evidence disclosure and joint and several liability. Even though private and public enforcement of competition law are considered to be complementary, the practice has shown that conflicts may arise, especially with the implementation of leniency policy. In addition, this paper aims to examine the Albanian approach to leniency policy and examine possible challenges of the Albanian private enforcement of competition law.*

*The methodology employed in this study includes a desk review and a comparative study. The desk review methodology encompasses an analytical review of EU standards, treaties, and secondary legislation, Albanian legislation on civil judicial procedure and the public enforcement of competition law. Second, the comparative analysis is conducted to highlight similarities and differences between EU and Albanian competition law concerning leniency policy. In addition, the US example and its substantially different approach towards private enforcement of competition law is examined.*

*The findings of this paper contribute to an understanding of the complex relationship between the EU public and private enforcement of the EU competition law (especially during leniency proceedings) and its implications for Albanian practice. Lastly, this study's findings provide new insights into the EU-oriented future of the Albanian competition law, offering suggestions for possible amendments to the actual national competition legislation.*

## 1. INTRODUCTION

Competition law plays a crucial role in promoting fair competition and ensuring that markets function efficiently. For decades, its main focus in European countries has been the public enforcement of competition law. Only in the last decade, private enforcement of competition law has been regulated and promoted. Both public and private enforcement of competition law have converging objectives, except for one point of conflict.

As will be argued in this paper, there exists a point of clash between the public enforcement's leniency policy, encouraging cartelists to reveal their uncompetitive behavior in exchange for (full or partial) immunity from fines, and private enforcement of competition law-allowing cartel victims to be compensated for damages caused by a cartel. The practice has shown that

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prioritizing one can jeopardize the other. As Hornkohl (2022) asserts, "After the adoption of the Damages Directive, it seems that has already discouraged leniency applicants".

*First,* this paper will analyze the way leniency policy and private enforcement of EU competition law correlate. The first part of the analysis will explore the aims and objectives of both policies, highlighting similarities and any divergences. The focus will then shift to a more comprehensive review of the conflict between the two, outlining how this conflict manifests in practice and why it is inevitable within the current legal framework. Lastly, this part will examine the current two mechanisms introduced by the Damages Directive to reconcile these two policies and will discuss potential legal amendments for the future.

*Second,* this paper will examine the Albanian legal framework concerning leniency policy and private enforcement of competition law. The Albanian law "On Protection of Competition" and other relevant legislation will be evaluated in comparison with EU treaties and secondary legislation. Additionally, the paper will shed light on the main issues surrounding the lack of leniency applications and private damages actions in Albania and will provide some possible remedies for the future.

## 2. HOW DO LENIENCY POLICY AND PRIVATE ENFORCEMENT OF EU COMPETITION LAW CORRELATE?

Leniency policy is one of the most successful policies introduced as part of the public enforcement of competition law. It was not an EU innovation, as it has been previously introduced in other legislations, including the US one. However, the EU leniency policy plays a crucial role, taking into consideration that private enforcement of competition law is less prominent in the EU, compared to the US. The Commission's Notice on Immunity from Fines (EU Commission, 2006) defines leniency as a policy where "the Commission will grant immunity from any fine which would otherwise have been imposed to an undertaking disclosing its participation in an alleged cartel affecting the Community if that undertaking is the first to submit information and evidence which in the Commission's view will enable it to carry out a targeted inspection...or find an infringement of Article [101 TFEU]". It can be deduced that the main aim of this policy is to encourage whistleblowers to race to the authorities, exposing cartels and receiving full or partial immunity from the fines.

Private enforcement of competition law, on the other hand, was formally introduced only recently in the EU, even though it was previously referred to in the European Court of Justice (EUCJ) case law. According to Wils (2016), "Private enforcement in EU Competition Law refers to the use of Articles 101 and 102 TFEU in litigation between private parties in the courts of the EU Member States" (p.3).

The leniency policy, introduced by the Commission, has been the most successful weapon in the Commission's war against cartels. Private enforcement of competition law can theoretically benefit from the discovery of cartels, making it easier for the infringed parties to support their claims. However, the additional guarantees that are provided for the leniency applicants may render the collection of evidence difficult (as will be discussed below). On the other hand, statistics show that the introduction of private enforcement of competition law has reduced leniency applications. For instance, the OECD (2023) found that over the last seven years, Europe experienced an overall 60% decline in the number of leniency applications (p. 8). Even though the adoption of

the Damages Directive is not the only reason for this trend (which has affected other parts of the globe as well), it has had its impact on this decline. Indeed, the relation between leniency policy and private enforcement of competition law features complications, which will be analyzed below.

## 2.1. Do Leniency Policy and EU Private Enforcement of Competition Law Follow Similar Aims?

Both leniency policy and private enforcement of EU competition law are components of the same law domain: competition law. As a general rule, their aims and objectives need to converge. However, this is not always the case.

According to the EU Commission (2022), one of the aims of leniency policy is to have a *deterrent effect* on cartel formation, in addition to having a *destabilizing effect* on the operation of existing cartels as it can create distrust and suspicion among cartel members. Overall, it can be concluded that leniency programs were created to increase the rate of detection of secret cartels, which by definition are difficult to discover (Ysewyn & Boudet, 2018, p. 2). However, the deterrent effect needs to be balanced by the proportionality principle (Hornkohl, 2022). This is also applicable in that not all cartelists can be rewarded (full or partial) immunity from fines.

The private enforcement of competition law, on the other hand, has three main objectives. First, the Damages Directive (2014) establishes in Article 1 that its objective is to guarantee the *right to full compensation* for competition infringement victims. In addition, the same article stipulates the objective to ensure "*the proper functioning of the internal market*". Lastly, this article provides the third objective "*to coordinate the public and private enforcement of competition rules*". The latter objective is an indicator of the importance of the well-functioning of the public enforcement of competition law (part of which is the leniency policy).

As mentioned above, while the leniency policy (and public enforcement of competition law in general) weigh on deterring cartel formation and sanctioning existing ones, this is not the main aim of public enforcement of competition law. The latter's first objective is guaranteeing the right to full compensation for cartel victims. Being very different, these objectives do not always go hand-in-hand. For instance, waiving the civil liability of whistleblower cartelists suits the objectives of the leniency policy. However, it would go against the interests of the victims seeking compensation.

Nonetheless, it is important to note that ensuring the right to full compensation is not the *sole objective* of private enforcement. The other two mentioned goals aim to find a balance between private and public enforcement of competition law. This conclusion can be drawn by noticing that the additional objectives in the Damages Directive are not limited to its scope, but rather apply to the broader context of the Internal Market and competition law. The following section will discuss further the potential conflict between the leniency policy and the private enforcement of competition law.

## 2.2. At Which Point Do Leniency Policy and EU Private Enforcement of Competition Law Clash?

The leniency policy has proven to be a convenient method of prosecuting cartels for decades. The private enforcement of competition law, on the other hand, is slowly but steadily developing, guaranteeing the right to compensation to the damaged parties.

However, the self-incrimination procedure of the leniency policy, if not given additional guarantees in follow-on actions (which are damages claims following an infringement decision of the Competition Authority), could easily turn the immunity recipient into a *safe target* for most of the injured parties. According to the Damages Directive, the cartelists are jointly and severally liable for the damages caused to third parties. Thus, the damaged parties can claim the damages to *any* of the members of the cartel. The victims of antitrust infringements would be inclined to choose to target the leniency applicant, for reasons that will be examined below. In such a situation, the potential immunity recipients would be discouraged from applying for leniency, weakening the efficiency of the leniency policy and therefore undermining an important tool of public enforcement.

In this case, members of a cartel who would be inclined to confess would reconsider applying for leniency for fear of being the favorite target of cartel victims. Even though, according to the leniency program, the whistle-blowers would be granted (full or partial) immunity from the fine, they could not predict the severity of the damages paid in compensation procedures. As Hornkohl (2022) emphasizes, "the problem is that which can surpass public enforcement in terms of the compensation as well as the duration and overall complexity of procedures".

### 2.3. The Mechanisms to Reconcile Leniency Policy and Private Enforcement of Competition Law

With the adoption of the Damages Directive, it was foreseeable that there would exist a potential conflict between these two domains of competition law. The above Directive introduced two main mechanisms to help balance the unavoidable clash.

*The first mechanism* introduced by the Damages Directive is enshrined in Article 6(6). It provides that "national courts *cannot* order a party to *disclose leniency statements*". As Recital 38 of the directive underlines, "it is appropriate to make provision for undertakings which have received immunity from fines to be protected from undue exposure to damage claims". This mechanism is important to ensure that leniency applicants will not be exposed to larger risks of damage claims, compared to other cartelists. As Venegas (2016) confirms, it needs to be borne in mind that the decision of the competition authority finding the infringement, may become final for the immunity recipient before it becomes final for the other undertakings, thus making the immunity recipient the preferential target of litigation (p. 95).

*The second mechanism* is provided under Article 11 of the Damages Directive which guarantees to the immunity recipients joint and several liability only to their direct or indirect purchasers or providers and to other injured parties only where full compensation cannot be obtained from the other undertakings in the cartel. Again, Recital 38 of the above directive clarifies that "to the extent that a cartel has caused harm to those other than the customers or providers of the infringers, the contribution of the immunity recipient should not exceed its relative responsibility for the harm caused."

Are these two mechanisms enough to set a balance between leniency policy and private enforcement of competition law? Even though the drafters of the Damages Directive were optimistic, the available statistics show that the number of leniency applications has declined after the introduction of the Damages Directive, as mentioned above. In a public-oriented enforcement of competition law like the EU system, a successful leniency policy would bring about more cartel investigations and hence, more follow-on actions in courts. "The emphasis that this directive

puts on the protection of leniency policy, indicates that public enforcement still remains a priority and that private enforcement is mainly an instrument to promote corrective justice and effective judicial protection rather than deterrence." (Venegas, 2016, p. 97).

What could be some additional measures to soothe the inevitable conflict between the leniency policy and private enforcement of competition law? Most authors believe that additional mechanisms safeguarding the leniency of applicants would be an option. For instance, a discussed solution is the introduction of the so-called 'fair funds', inspired by the US antitrust law. Fair Funds could be used to offset the loss of a possible defendant through leniency exemptions for follow-on damages actions (Hornkohl, 2022). Other officials opt for even more drastic measures, like excluding leniency applicants from any follow-on actions (Aranze, 2021, p. 1). However, such drastic measures in favor of public enforcement have the potential to bring already fragile private enforcement to an end. Other authors suggest opting for new *proactive* ways to prosecute cartels instead of leniency (considered a reactive method), including the use of economics, case analysis, industry monitoring, technology-led screens, etc. (OECD, 2023; Hüschelrath, 2010; Ysewyn & Kahmann, 2018).

## 3. HAS THE ALBANIAN LEGISLATION STRICKEN A BALANCE BETWEEN LENIENCY POLICY AND PRIVATE ENFORCEMENT OF COMPETITION LAW?

Before answering the above question, it needs to be borne in mind that Albania has been under a totalitarian communist regime for about 45 years, from 1945 to 1991. During this time, the establishment of private businesses was prohibited. Thus, business law and competition policies did not exist. After the fall of the communist regime, Albania started an era of transitional democracy, adopting new legislation and amending the existing one. However, as a result of the communist past, competition culture is still fragile.

### 3.1. Albanian Legal Framework Regulating Public and Private Enforcement of Competition Law

The Actual Albanian legal framework establishes competition rules and admits their importance in creating an effective and functional market. First, the *Constitution of the Republic of Albania* (1998) does not explicitly regulate competition. However, in Article 11, it provides that "...restrictions on the freedom of economic activity can be set only by law and only for important public reasons". Moreover, as a Candidate State for EU membership and a signing Member of the *Stabilization and Association Agreement* (EU & Albania, 2006), the latter must transpose the EU legislation to the Albanian one. Part of the obligations mentioned in this agreement are the rules for the protection of competition, sanctioned in Title VI of this Agreement. The main legal instrument regulating competition law in Albania is the law *"On Protection of Competition"* (2003). This law regulates the substantive aspects of competition law and partially the procedural ones mostly regarding public enforcement of competition law and in a smaller amount the private enforcement of competition law.

The *public enforcement* of competition law in Albania, in a similar fashion to the EU model, is more developed compared to private enforcement of competition law. It is primarily established in the law "On Protection of Competition", which regulates, *inter alia*, the organization and functioning of the Albanian Competition Authority (ACA), its administrative procedures, investigative powers, sanctioning powers, its cooperation with other institutions, etc.

*Leniency policy*, as part of the public enforcement of competition law, is introduced in the Albanian law "On Protection of Competition". Its Article 77 briefly defines leniency policy and establishes that ACA provides counseling concerning leniency policy to the undertakings. The above article also underlines that this counseling is not made public to other parties (mirroring the EU non-disclosure mechanism introduced later by the Damages Directive). The leniency policy is not further regulated in the law but the Albanian Competition Authority's normative acts offer a more comprehensive perspective on it. The ACA's regulation "On Fines and their Leniency" (2009), partially aligns with the EU Commission's Leniency Notice by addressing aspects such as the reduction of fines based on cooperation level and leniency line placement. Furthermore, the ACA's Leniency from Fines Program (2016) provides further guidance on various aspects of the leniency policy implementation in Albania. It is based on the Commission's Leniency Notice as well, especially regarding the requirements to qualify for (full or partial) immunity. It is written in a "Questions and Answers" format and covers additional information regarding the definition of "agreement", "leniency", and provides a list of prohibited agreements. Interestingly and differently from the EU provisions, the Albanian legislation includes both horizontal and vertical agreements as objects of the leniency policy. Conversely, as Ysewyn and van Kruijsdijk (2022) argue, "at the EU level and in most Member States, leniency only applies to hard-core secret cartels (i.e., with horizontal effects between two or more competitors), excluding purely vertical agreements".

Even though the Albanian law "On Protection of Competition" and the ACA's normative acts lay down the major substantive rules regarding leniency policy in Albania, not all of the *procedural* elements are regulated by either of them. As concerns the general administrative procedures of the Competition Authority, the Albanian Code of Administrative Procedures applies, except for special cases when the law "On Protection of Competition" or ACA normative acts make exceptions.

*The private enforcement of competition law* in Albania is primarily regulated by the law "On Protection of Competition". Its Part 4 lays down the procedural rules governing civil proceedings. This part of the Albanian competition law proved to be very innovative at the time the law was adopted (2003). During this time, the private enforcement of EU law was recognized by the European Court of Justice decisions like *BRT and SABAM* (1973), *Courage* (2001), and was later elaborated further by Manfredi (2006), *Otis* (2012) and *Kone* (2014). However, private damages were recognized by EU secondary legislation only in 2014 after the Adoption of the Damages Directive. Part 4 of the Albanian law "On Protection of Competition" establishes the right to compensation to damaged parties by cartels, referring to the Albanian Civil Code provisions on compensation claims in Article 65(1)(b). The same article allows for stand-alone and follow-on lawsuits. The Albanian approach as regards the procedure that governs private enforcement of competition law for the most part is not different from the procedure for damages actions in general (Bogdani & Canco, 2021, p. 52).

In addition to the provisions above, ACA has adopted a Guideline titled "On Damages Caused and Actions Taken when the Provisions of the Law on Protection of Competition are Violated" (2019) also known as ACA's Damages Guideline. This act has faithfully transposed the Commission's Damages Directive. Consequently, the two mechanisms provided by the Damages Directive to avoid conflict between leniency policy and private enforcement of competition law are applicable in Albanian legislation as well. The non-disclosure mechanism is enshrined in Article 6(4) (a), whereas the exclusion from joint and several liability is established in Article 11(4)(a) and (b).

### 3.2. Issues Concerning the Implementation of Leniency Policy and Private Enforcement of Competition Law in Albania and Future Challenges

During the last three decades of democracy in Albania, the EU competition legal framework has been transposed into the Albanian one at a satisfactory level. However, the practice lacks the right implementation of leniency procedures and private enforcement of competition law.

In a different fashion compared to EU competition law, the *leniency policy* in Albania is not the most successful tool in investigating cartels. Cartels are discovered mainly through ACA's *ex officio* investigation in the market. According to ACA's last Annual Report (2023), most of the investigations on anticompetitive behavior were opened with the authority's initiative through market monitoring, or based on complaints (p. 28). Compared to the previous years, there can be noticed an increase in ACA's decisions and the number of fines. However, this is not a consequence of the application of leniency policy, rather than an increase of market monitoring by the Competition Authority. Until the end of 2023, no leniency applications had been made at the ACA (Global Competition Review, 2023). The potential for revitalizing the leniency policy in Albania depends on efforts to enhance the predictability of leniency procedures, particularly concerning the determination of fines and the extent of immunity afforded to applicants. Furthermore, proactive measures are required to raise awareness among businesses regarding the benefits of seeking leniency.

The lack of leniency applications would mean fewer restrictions for the evidence to be used in courts by *private parties*, once a cartel was discovered by the ACA. However, even though most cartels are discovered by the ACA's initiative, private parties seem to be still not encouraged to file for damages. The latter is a result of various causes, *inter alia*, "the lack of public awareness of the possibility for civil protection against competition infringements, the lack of credibility regarding the judiciary, the length of civil court proceedings and the lack of procedural instruments for private parties to easily obtain evidence for antitrust infringements" (United Nations, 2015, p. 57). This paper suggests several potential ways to promote private enforcement of competition law in Albania. First, an amendment to the Albanian competition law on the competent court to deal with damage claims. The only competent court to decide on competition damages is the District Court of Tirana (Albania's capital), which could render it more difficult for parties located in other areas in Albania to claim compensation. Moreover, the EU Damages Directive is transposed into ACA's Damages Guideline. Even though the latter has faithfully mirrored the principles introduced by this Directive, in the Albanian legal instruments' hierarchy, is considered 'soft law'. As Skara (2022) asserts, "...the Guideline on Damages does not produce legally binding effects" (p. 280). This could decrease the legal certainty of compensation actions in the court. The Damages Directive would need to be implemented into a formal law to be more enforceable. In addition, it is also essential to improve public awareness regarding the right to seek damages in cases of cartel misconduct, as this could bolster understanding and adherence to competition law.

### 4. CONCLUSION

This paper attempted to provide a perspective of the relationship between two areas of competition law: leniency policy (as a key element, part of public enforcement of competition law) and private enforcement of competition law. The comparative analysis between the EU and Albanian legal framework pointed out the similarities in the legal instruments and their provisions regarding both leniency policy and private enforcement. However, this study concluded that there are important differences between the EU and Albania regarding the implementation of these policies.

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In its first part, this study focused on how leniency policy and private enforcement of competition law correlate in the EU. It concluded that these two policies follow different objectives, leniency policy focuses on deterring the creation of cartels whereas private enforcement on compensating the victims. Consequently, a conflict between the two is almost inevitable in the actual legal framework: a prioritized leniency policy has the potential to hinder the collection of evidence and limit the whistleblowers' liability, and *vice versa*, prioritized private enforcement would discourage leniency applications. The two mechanisms introduced by the Damages Directive to avoid this clash are not enough to prevent the clash. Consequently, additional mechanisms need to be introduced to set a new balance.

In its second part, this paper discussed the relation between these two policies within the Albanian legal framework and practice. As a Candidate EU Member State, Albania had transposed most of the EU's secondary legislation concerning competition law. However, the practice shows a very different implementation process. Differently from the EU example, in Albania, the leniency policy is not the key element used to discover cartels. The latter are investigated and prosecuted by the Albanian Competition Authority *ex officio*. Even though the authority has found breaches of competition law without the help of leniency applications, private lawsuits are still not filed by the victims to claim compensation. Several potential solutions to the current situation in Albania entail amending existing competition laws and other normative acts. In addition, initiatives aimed at increasing public awareness regarding the importance of competition within the market would help strengthen the competition culture. This includes educating stakeholders about the benefits of seeking leniency and informing the public about their right to claim damages from competition infringements.

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# The Characteristics of Consumer Contracts and Their Place in the System of Private Law Contracts, with Particular Regard to Foreign Currency-Based Loan Contracts and Aspects of Legal Issues Arising in Lawsuits Related to These Contracts

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**Abstract:** *The development of consumer protection and its appearance in political thinking are closely related (among other things) to the appearance of the market economy and the development of economic conditions in general. In Europe, this phenomenon first appeared in Austria in the mid-1990s, primarily in the areas of the country bordering Switzerland. In Central and Eastern Europe, foreign currency lending in the 21st century started at a rapid pace, which can be supported by many factors. Courts have found themselves in an extremely difficult, never-before-seen situation when dealing with an extremely large number of lawsuits arriving within a short period, typically raising the same legal issues, having a large social impact and evoking significant social interest. In addition, legal issues in which the EU Court has a monopoly on legal interpretation arose in these lawsuits. In order to ensure legal unity as much as possible, the courts try to solve these cases with all the means provided by law.*

## 1.    INTRODUCTION

The purpose of consumer protection law is to create and at the same time establish a balance between the two main players in market and financial relations, the consumer and the business.

The effective consumer protection policy, which together with the procedural rules in accordance with the material legislation, ensures the proper and efficient operation of the economy, by guaranteeing and respecting the rights of consumers vis-à-vis businesses, as well as providing increased protection for vulnerable consumers.

The creation of consumer protection rules goes back thousands of years and also aims to create conscious consumer behavior and effectively protect the safety and economic and financial interests of consumers.

## 2.    THE HISTORY OF CONSUMER PROTECTION

The consumer protection foundations of the rules in force today were established in the 1960s and 1970s in the United States, however, the major turning point was J.F. Kennedy's speech in 1962, in which Kennedy raised consumer protection to a state and political level, and created a law containing the basic rights of consumers law [Bill of Rights (Basic Consumer Rights)].

The first basic consumer rights to appear in official form are contained in the UN Charter for the Protection of Consumer Interests, which was adopted by the UN General Assembly on April

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9, 1985. This Charter defines eight rights, such that, in addition to the four basic rights to basic needs, legal remedies, education and a healthy environment, by right.

The official opening of consumer protection policy at the EU level was marked by the Council resolution of April 14, 1975, on the preliminary program of the European Economic Community's consumer protection and information policy.

The Magna Carta of the Common Market of Consumer Rights declared the five basic rights of consumers, which are as follows: the protection of the health and safety of consumers, the protection of the economic interests of consumers, the right to information and education, the right to enforce claims, the right to represent consumer interests, which belong to basic consumer rights (Zoványi, 2011).

The period between 1975 and 1980 was the first consumer protection program, which was followed by three-year and five-year consumer programs. As a result of this process, consumer protection appeared as an independent policy, the documents of which are the following: Single European Document adopted in 1986, the Maastricht Treaty, which was signed on February 7, 1992, and entered into force on November 1, 1993, the Amsterdam Treaty, which was signed on October 2, 1997, entered into force on May 1, 1999, and the Lisbon Treaty, which entered into force on December 1, 2009.

The basic objective of the second consumer protection strategy for the period 2014-2020 was to ensure a high level of consumer protection in the EU internal market within the framework of a comprehensive strategy aimed at sustainable and inclusive growth.

In 2018, the Commission issued a communication to the European Parliament, the Council and the European Economic and Social Committee, in which they drew attention to the provision of more effective legal remedies and closer administrative cooperation.

In order to more effectively implement and modernize EU consumer protection rules, the European Parliament and the Council issued Directive 2019/2161 (EU).

## 3. HUNGARY'S SITUATION

During the socialist period, which denied economic competition, the consumer was in a vulnerable position, and this could be traced back to the permanent deficit characteristic of the socialist economy.

In this period, the legal regulation was about quality protection, the rules of which are in the Civil Code of 1959, were published in law (hereinafter: old Civil Code), in addition, I would highlight the IV of 1977 novella, with which the general contract condition was regulated, or challenging it with a public interest lawsuit, as well as Article IV of 1984 on the prohibition of unfair economic activity.

After the regime change, the demand for consumer protection increased, and the fulfillment of the European Agreement of 1994, signed on December 16, 1991, as well as the legal harmonization obligation for the associated countries of Central and Eastern Europe, played an important role in the development of consumer protection law supporting document, the so-called „White Paper".

CLV of 1997 on consumer protection, comprehensive regulation of consumer protection was implemented in the law, the law ensures the protection of consumer interests recognized in the European Community with comprehensive regulation and also takes measures to further develop the institutional system necessary for their enforcement. The above legislation is based on the five basic consumer rights and includes the basic criteria of healthy and safe goods and services and the manufacturer's responsibility for ensuring them enforce the right of consumers to protect their health and safety.

The Basic Law of Hungary, which entered into force on January 1, 2012, the second sentence of Article M, paragraph (2), is also the constitutional basis of consumer protection regulations, from which the state has an obligation to ensure the establishment and maintenance of an institutional system that protects the interests of consumers and create legislation that ensures the rights of consumers.

Aspects of legal issues arising in lawsuits related to currency-based loan agreements:
- „Foreign currency lending" as a phenomenon in Europe first appeared in Austria in the mid-1990s, primarily in the areas of the country bordering Switzerland. Austrian commercial banks have found that residents (and entrepreneurs) are happy to drive 15-20 km across the border to banks on the Swiss side of the border because they prefer to pay in Swiss francs (CHF- in) and take out the necessary loan, rather than in Austria, in local currency. Some Austrian credit institutions responded to this competitive challenge by including Swiss franc-based loans in their loan offer. The product became available throughout Austria in a short period and quickly became popular, around 2005 it already reached 30% of the total household loans. This gave birth to one of the most dangerous „financial time bombs" of the 21st century, which later caused serious problems mainly in the Central and Eastern European region.
- Foreign currency lending is not a specific Hungarian phenomenon, rather it is typical of the Central and Eastern European region. In Central and Eastern Europe, foreign currency lending in the 21st century started at a rapid pace, which can be supported by the following factors: following the privatization process, foreign, typically Austrian and Italian banks entering the Central and Eastern European market appeared; higher inflation and high interest rate; catching-up Central and Eastern European region, in some cases, it is a spectacular offensive tool for the retail market share for the foreign banks in the banking sector compared to the local, resource-poor banks (Nagy, 2014).
- The specificity of the Hungarian situation is that the scale and ratio (more precisely, its disproportionality) of foreign currency lending to households was so outstanding that it led to financial system risk and, in other respects, social risk for the first time in Europe.
- In the past 40 years, the Hungarian justice system has not faced a situation similar to that caused by the lawsuits initiated in connection with foreign currency-based lending and is still causing them to this day. One of the main characteristics of this situation is that lawsuits related to foreign currency-based loan contracts were initiated several years after the contracts were concluded. These lawsuits are mainly aimed at establishing the non-existence or invalidity of the contracts. The lawsuits were therefore filed when the exchange rate of the forint significantly and permanently weakened compared to the foreign currency, i.e. the Swiss franc (CHF) and, to a lesser extent, the euro (EUR). This put the debtors in such a situation that they could not or did not want to bear the increased burdens.

## 4. DEVELOPMENT OF JURISPRUDENCE, „STEPS" FOR UNIFORM JURISPRUDENCE

In 2011, the Civil Chamber of the Kúria examined some questions arising in judicial practice in connection with consumer contracts, which investigation was justified by the following: the special characteristics of consumer contracts, the need for enhanced legal protection of consumers, the problems of the joint application of Hungarian and EU rules, the ever-increasing number of decisions of the Court of Justice of the European Union in this area and, last but not least, the uncertainties of legal interpretation in this area. On the topic of consumer contracts, in December 2011, the Kúria adopted two collegium opinions 2/2011. (XII.12.) PK opinion on certain issues related to the validity of consumer contracts, as well as 3/2011. (XII.12.) PK opinion on certain issues of the assessment of the public interest lawsuit related to the consumer contract, however, the necessity arose already then that the investigation should be extended to certain issues related to consumer loan contracts as well (Bányai, 2022).

According to the rules of jurisdiction, the judicial councils of the proceedings initiated before the various courts noticed that these were not individual cases. It can be concluded that due to the discrepancies between the legislation governing the transaction, or the lack thereof, and the actual practice, and due to its impact on the entire economy, decisions made on the basis of uniform principles are necessary, which was the instrument of the following decision made by the Legal Unity Council of the Kúria.

On December 16, 2013, the Court made its first legal decision in order to adjudicate foreign currency credit lawsuits according to uniform principles. This legal unity decision was the one that clearly stated the most important issue that arose during the foreign currency credit lawsuits.

When examining the civil law characteristics of foreign currency-based loan agreements, one must first start with the name itself. As stated by Kúria 6/2013, the justification of the Civil Rights Decision (point III. 1) also points out: that when currency-based contracts became widespread, the law did not define the concept of a currency-based loan. The latter is CXII of 1996 on credit institutions and financial enterprises. Act (hereinafter: old Hpt.) 200/A effective from September 27, 2010. Paragraph (1) of § provided a definition for this. Based on this, the credit, loan or financial leasing agreement is based on foreign currency, if it was registered in foreign currency, or if it was granted in foreign currency and repaid in HUF. Foreign currency-based loans can be classified in the broader group of foreign currency loans. A foreign currency loan is one in which the denominated currency of the monetary debt is not HUF. In the absence of a legal prohibition to this effect, the parties are in principle free to determine the default currency in the case of any reciprocal contract. Based on this, the foreign currency-based loan is also a foreign currency loan, since the debt is defined in foreign currency.

In Evonatkoz, the creditor is obliged to disburse the loan in forints, and the debtor is obliged to repay it in forints, so both the creditor and the debtor pay off their monetary debt in foreign currency in forints. During the creation of the above legal unity decision, one of the questions proposed by the head of the Civil College of the Kúria was aimed at answering the following: „If the foreign currency-based loan contracts are invalid for any reason, among the legal consequences of the invalidity (declaration as valid, restoration of the original state, declaration as effective), the court can you apply any of them, and which legal consequence should you apply when?" The 6/2013. Legal unity decision No. PJE did not fully answer the cited question. According to point 4 of the legal unity decision: „If the court determines the invalidity of the

contract - in the case of a claim for the application of legal consequences (counterclaim), provided that the cause of the invalidity can be eliminated or has subsequently ceased - the court must primarily strive to declare the contract valid." (Gárdos, 2014).

However, the legal unity decision did not give any guidelines as to what the applicable legal consequence is if the cause of the invalidity cannot be eliminated.

## 5. SUGGESTED SOLUTIONS IN THE LIGHT OF COLLECTIVE REDRESS

### 5.1. Regarding Representative Actions, Would They Be an Effective Tool for Lawsuits Involving Foreign Currency Loans?

Before I get to the possible solutions for answering this „open" question, I will describe the rules of the new legal institution for representative actions. From the summer of 2023, the remedying of interests caused by violations affecting a wide range of consumers through the courts may become more effective. At the end of 2022, the Parliament adopted Act LXI of 2022 on the amendment of certain laws necessary for effective consumer protection. Law („Law'), with which the directive adopted by the European Parliament and the Council in November 2020 („Directive") was incorporated into Hungarian law. The institution of the representative action introduced by the Act serves to fight against violations of law that have increased as a result of globalization and digitalization and affect a wide range of consumers.

The question is when this type of lawsuit can be initiated and can serve as a solution to lawsuits involving foreign currency loans: In our consumer society, there are violations of law that occur en masse and do not only harm the individual interests of a single consumer, such as the invalidity lawsuits initiated by individual consumers concerning foreign currency loans initiated en masse. The European and domestic legal systems want to ensure effective action with the above institution in the protection of the general interest of consumers or a group of consumers. To this end, the Consumer Protection Act entitles, among other things, the Consumer Protection Authority, the Hungarian National Bank, the Prosecutor's Office, as well as all central government administrative bodies, autonomous state administration and independent regulatory bodies whose task is to protect consumer rights, and also, by designation, non-profit organizations that meet special conditions, so that they can file a civil lawsuit in court to protect the interests of consumers. A representative action can enforce the rights of hundreds or thousands of consumers without the consumers having to actively participate in a civil lawsuit.

The spread of foreign currency lending, as well as the imbalance in these contracts following the 2008 crisis, has become a social problem not seen since the regime change in Hungary. The legislator also had to provide an answer to this problem, which was already threatening economic development. The laws enacted in 2014 served the purpose of freeing Hungarian society once and for all from the difficulties caused by foreign currency lending. Today, however, it can also be seen that for certain social groups, neither the settlement nor the forint conversion was of any real help. These debtors have accumulated a debt that significantly exceeds the value of their residential property pledged as collateral, with the fulfillment of which, moreover, they fell into significant delay even before the birth of the indicated laws.

It is therefore important that the consumer cannot directly initiate a representative action. Only organizations authorized to do so by the Consumer Protection Act and designated on a

case-by-case or general basis can file a representative action - within their own jurisdiction - even based on indications from consumers. The consumer protection authority, the prosecutor's office, the MNB and all central government administrative bodies, autonomous state administrative bodies and independent regulatory bodies whose task is the protection of consumer rights are considered authorized organizations without a nomination procedure. Non-state organizations authorized through the selection procedure must meet several criteria. For example, they must have their headquarters in Hungary and have been engaged in consumer protection activities for at least 12 months, be independent and non-profit organizations. The minister responsible for consumer protection, i.e. the minister of justice, decides on the right to file a lawsuit as an authorized organization, as well as on the designation as an authorized organization. If necessary, the minister responsible for consumer protection will review the existence of legal conditions for organizations authorized through the designation procedure out of turn, but at least every five years. 530/2022 on the procedure to be conducted in order to be included in the list according to Directive (EU) 2020/1828, as well as on the examination of the financing of representative actions aimed at remedying the violation of rights, provides in detail about the designation procedure and the examination of the funding (XII. 19.) Government decree. The Ministry of Justice publishes the list of designated organizations on its website.

The consumer does not participate personally and directly in the lawsuit. The representative action is not initiated by the authorized organizations on behalf of the individual, named consumers, but on behalf of the identifiably affected but unnamed group of consumers. As a result, the consumer does not need to provide representation or hire a lawyer, which significantly reduces costs for consumers. In order to prevent a possible large number of interventions in public interest lawsuits and, in this connection, the prolongation of lawsuits, intervention in public interest lawsuits is not possible.

The authorized organizations provide information on their website about the representative actions they have initiated, their status and their outcome. The minister responsible for consumer protection provides general information on ongoing and adjudicated representative actions on his website. In the judgment, the court may order the publication of a notice with a text on the basis of which the rights of the affected consumers can be recognized, they are able to identify that they can enforce their claims against the entrepreneur as written in the judgment, and in the absence of voluntary compliance, they can initiate court enforcement.

The personal scope of the judgment extends to those consumers who belong to the range of stakeholders defined in the court judgment. The consumer does not have to make a separate statement about this during the lawsuit, but in case of winning the lawsuit, in order to satisfy his demand, he must prove that he belongs to the affected circle. The identification of the affected consumer group and the method of verification are included in the judgment (Schneider, 2018).

However, a lawsuit initiated on the basis of a representative action does not exclude the consumer's later individual claim enforcement, if the judgment rendered in a public interest lawsuit, for example, only contains a measure aimed at ending the infringement, but does not remedy the consumer's individual infringement, or if the consumer violates the 2016 Code of Civil Procedure CXXX. according to § 578 of the Act (hereinafter: Pp.), reserves the right to bring an individual action.

## 6.  CONCLUSION

However, the guarantee procedure rules of consumer protection are still exceptional and do not come into conflict with the legal rules based on the equality of the parties and the primacy of the right of disposal. During the application of the new procedural rules, law enforcement must create a balance that can take into account both the requirements of responsible litigation and consumer protection in the changed legal environment. The effects of this will be judged based on the experiences of the near future.

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# Defending Corporate (Human) Rights in Strasbourg. Insights from the European Court of Human Rights Case Law

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**Abstract:** *The article encompasses the legal perspectives and challenges emerging when corporations defend their rights at the European Court of Human Rights (ECtHR). Researching the procedural aspects and jurisprudential developments, it aims to conduct a legal analysis of the human rights entitlements of corporations, as legal entities, enshrined in the European Convention of Human Rights (ECHR).*

*Issues concerning property rights, fair trial, and fundamental liberties protected by the European Convention, are addressed. Furthermore, the research explores the extent to which rights traditionally attributed to natural persons beyond business context, such as the right to privacy, freedom of expression, and the entitlement to just satisfaction, apply to legal entities.*

*Attempting to shed light on the context of corporate rights and their intersection with well-established human rights standards, the article contributes to fueling the dialogue between business and human rights within the European legal framework.*

## 1. INTRODUCTION

The European Court on Human Rights (ECtHR), functioning as a regional judicial body for the protection of human rights, extends its jurisdiction to consider applications from corporate entities. The Court's jurisdiction extends to all issues concerning the interpretation of and application of the European Convention on Human Rights (ECHR) (Council of Europe, 1950)

So far, ECHR as an internationally binding instrument embodies the most prominent example of how Human Rights Law has been invoked to safeguard corporations rights (as legal persons) and although it provides some textual basis for protecting corporate rights, judicial interpretations have proven to be crucial in the development of corporate rights under the ECtHR. (Ku, 2012, p. 746)

Within the ambit of Article 34 of the European Convention on Human Rights, corporations are classified as non-governmental organizations. This marks a significant development in the realm of human rights law, as it broadens the scope of the article to embrace legal entities' rights, thereby entitling them to legal protection.

As Emberland argues, a wide variety of business entities and their constituents, limited liability companies and their shareholders included are among those persons entitled to invest the Court by lodging applications (Emberland, 2003, p. 946).

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In light of this perspective, the paper aims to conduct a legal analysis of the human rights of corporations[3], enshrined in the ECHR.

It addresses issues relating to property rights, fair trial, and fundamental liberties protected by the Convention. Furthermore, the research explores the extent to which rights traditionally attributed to natural persons beyond business context, such as the right to privacy, freedom of expression, and the entitlement to just satisfaction, apply to legal entities.

The research endeavors to address the following research questions:
*   How does the ECtHR address the legal personality of corporations in its jurisprudence?
*   Which fundamental rights and freedoms are explicitly acknowledged and protected in the ECHR?
*   Do the ECtHR human rights standards apply when adjudicating cases involving corporations or companies?
*   How does the ECtHR approach cases related to the right to family life and freedom of expression concerning corporate entities?
*   What fundamental rights are not attributed to them?

The research methods employed consist of :
*   Documentary Analysis: Considering ECHR articles (substantive and procedural rights) to clarify human rights applicable and non-applicable to corporations.
*   Jurisprudence of the ECtHR: Employing the HUDOC database to elucidate how the European Court of Human Rights (ECtHR) interprets and applies the ECHR in cases involving corporate entities.
*   Incorporation of relevant scholarly articles into the research.

## 2.   VICTIM STATUS AND LEGAL PERSONALITY

The European Convention on Human Rights does not identify businesses (companies) as direct recipients of human rights protections. Under Article 34 of ECHR, The Court may receive applications from any person, non-governmental organization or group of individuals claiming to be the victim of a violation by one of the High Contracting Parties of the rights outlined in the Convention or the Protocols thereto.

Despite this lack of explicit recognition, the European Court of Human Rights, consistent with established human rights standards and principles, has interpreted the Convention to grant human rights to companies, thereby formally including them within its scope.

Central to this approach, the principle of dynamic interpretation considers the Convention not a static document, but a "living instrument" that "must be interpreted in the light of present-day conditions" (Golder v. The United Kingdom, 1975) and in a fashion that renders its rights "practical and effective, "not" theoretical or illusory (Tyrer v. The United Kingdom, 1978).

Consequently, companies are classified as non-governmental organizations, thus legitimating their opportunity to lodge applications in the Court regarding human rights violations.

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[3]     In this paper, the terms "Corporations" and "Companies" are used as synonymously.

To ensure that their claims are examined and the merits of the case are assessed by ECtHR, applicants are required to meet the admissibility criteria outlined in Articles 34 and 35 of ECHR. The following specific criteria, *inter alia*, entail:

- Establishing victim status.
- Demonstrating that the violated rights are protected in the Convention or its Protocols.
- Exhausting domestic remedies.

## 2.1.  The Establishment of Victimhood

In the context of Article 34 of the Convention, as elaborated by the Court, the concept of "victim", refers to the person or persons directly or indirectly affected by the alleged violation (Eckle v. Germany, 1982).

To obtain victim status, the applicants must demonstrate the direct link between themselves and the harm they claim to have suffered (Gorraiz Lizarraga and Others v. Spain, 2004). The establishment of this link is essential for the Court to proceed with the assessment of the admissibility and merits of the case.

Accordingly, there are 2 situations under which the Court recognizes the victim status of companies:

1.  When shareholders complain about measures affecting their rights as shareholders (Albert and Others v. Hungary, 2020).
2.  When shareholders complain about acts affecting companies, in which they hold shares (Agrotexim and Others v. Greece, 1995).

In the context of the aforementioned situation, shareholders of companies are generally not considered victims, within the ambit of Article 34 of the Convention. Nevertheless, there are exceptions to this rule, where shareholders may be able to assert their rights before the Court and this legal principle is known as "Piercing of corporate veil". This principle developed in ECtHR case law as well as academic scholarship, applies only under specific circumstances.

For instance, as noted by Emberland "The principle of the corporate veil presupposes a fundamental distinction between the rights of shareholders, which belong directly to them, and the interests they hold in the company, which are not regarded as belonging to the individual shareholder but rather to the company itself." (Emberland, 2003, p. 946)

Piercing the corporate veil is primarily related to claims concerning the right to peaceful enjoyment of one's possessions. Enshrined in Article 1 of Protocol 1 to the Convention, it is the only explicit right directed to legal persons, extending to company shares with an economic value and corresponding rights. These rights include indirect claims over the company's assets, such as the right to a share in them in the event of it being wound up, and other unrestricted rights such as voting rights and the right to influence the company's management and policy decisions (Marini v. Albania, 2007).

Sometimes, the company and its shareholders' responsibilities may overlap in certain situations, complicating the definition of victim status. The court has recognized this complexity in cases involving alleged violations of property and has identified two specific situations in *Albert and Others v. Hungary*.

Firstly, the shareholders may claim victim status on the grounds that the company and its shareholders are so closely identified with each other that it is artificial to distinguish between them. Secondly, they may as well be recognized victims if "exceptional circumstances" warrant it (Albert and Others v. Hungary, 2020).

The principle of identification was established in the case of *Pine Valley Developments Ltd. and Others v. Ireland*. The Court noted that it would be artificial to distinguish between the three applicants regarding their entitlement to claim victims status since Pine Valley and Healy Holdings merely served as instruments for Mr. Healy to carry out the development project for which outline planning permission had been granted (Pine Valley Developments LTD. and Others v. Ireland, 1989). In this scenario, shareholders may claim protection and remedies for rights that are exclusively reserved for the company as a separate legal entity.

Secondly, in *Agrotexim and others v. Greece*, the Court delineated the exceptional circumstances under which a company's veil could be pierced. Specifically, the legal personality might be disregarded in particular under the following situations :
- Where it is clearly established that it is impossible for the company to lodge an application to the Court through the organs set up under its articles of incorporation,
- In the event of liquidation, through its liquidators; or any contested acts or where the contested acts or decisions pertain to persons such as a liquidator acting on the company's behalf.

Only in such cases, shareholders may be permitted to pursue the complaint on the company's behalf. Nevertheless, the Court emphasized that weighty and convincing reasons must be provided to demonstrate the practical and effective impossibility of the company to lodge an application in ECtHR, through organs set up under its articles of association (Albert and Others v. Hungary, 2020).

## 2.2. Exhaustion of Domestic Remedies

Article 35 of the European Convention on Human Rights stipulates that, for an application lodged before ECtHR to be admissible, all domestic remedies must be exhausted. Additionally, the article imposes other requirements including compliance with four month period, the date of the final decision. The criteria of exhausting domestic remedies is intricately linked to Article 13 of the Convention. As the Court argued in judgments these remedies are indispensable to the effective functioning of the protection system (Albert and Others v. Hungary, 2020).

In this context, applicants are required to exhaust available and adequate domestic remedies for their Convention complaints. Nonetheless, these remedies must be sufficiently certain not only in theory but in practice; otherwise, they will lack the necessary accessibility and effectiveness (Akdivar and Others v.Turkey, 1996).

## 2.3. Violation by One of the High Contracting Parties of the Rights Outlined in the Convention or the Protocols Thereto

Companies are entitled to both substantive and procedural rights enshrined in the Convention and its protocols. Although the provisions of the ECHR do not distinguish between natural and legal persons, they refer either to "persons" or simply to "everyone" (Ku, 2012).

For instance, Article 1 reminds States of their positive obligations to "secure to everyone within their jurisdiction the rights and freedoms sanctioned in this Convention."

While companies are not explicitly mentioned, they are entitled to the following human rights and freedoms: the right to a fair trial (Article 6); the right to no punishment without law (Article 7); the freedom of assembly and association (Article 11); the right to an effective remedy (Article 13); protection against discrimination (Article 14); the right to peaceful enjoyment of possessions (Article 1 of Protocol 1); the right not to be tried or punished twice (Article 4 of the Seventh Protocol).

Due to their fundamental character, companies are exempt from certain Convention rights, designed to safeguard humans, including the right to life (Article 2); the prohibition against torture, inhuman, or degrading punishment (Article 3); the freedom from arbitrary detention (Article 5); the right to marry (Article 12); the freedom of conscience (Article 9).

The European Court of Human Rights has interpreted and applied human rights standards while adjudicating corporate human rights claims. In the subsequent sections of the paper, some of the most representative practical cases will be examined.

### 2.3.1. Right to a Fair Trial

In the case *Qufaj CO. SH.P.K v.Albania*, the applicant company was prevented from benefiting from the execution of a judgment in its favor, which acknowledged compensation for damages resulting from the local authority's refusal to grant a building permit, due to the State's financial difficulties.

The ECtHR emphasized that the execution of a judgment rendered by any court entails an integral part of the right to a fair trial, enshrined in Article 6 of ECHR. Moreover, that right would be rendered illusory if a Contracting State's domestic legal system allowed a final, binding judicial decision to remain unexecuted thereby disadvantaging one party (Qufaj CO. SH.P.K v.Albania, 2004).

Another aspect of the right to a fair trial is the excessive length of proceedings. In *Marini v.Albania,* the Court noted that the reluctance of national authorities to fulfill their obligations, established at the company's commencement, combined with the excessive length of the proceedings in domestic courts, contributed to the applicant's shareholding inactivity and prevented the realization of expected profits (Marini v. Albania, 2007).

### 2.3.2. Right to Privacy

The European Court of Human Rights asserts that there is no principled reason to exclude professional or business activities from the notion of private life; as guaranteed by provisions of Article 8 of the Convention. In this regard, the *Niemietz case* was pivotal because it underscored the significance of protecting privacy, extending these protections to include the respect for a company's registered office, branches, or other business premises since professional activities can occur in a person's private residence, while unrelated activities may take place in an office or commercial premises (Niemietz v. Germany, 1992).

Considering the Court's jurisprudence, Article 8 safeguards the home, correspondence, and reputation of legal entities, including companies. It has interpreted the components and granted protection to company settings. For instance:

**Protection of home** – The ECtHR has given relevance to the protection of the home, affirming that the search of a company's business premises, despite its aim to prevent the disappearance or concealment of evidence related to anti-competitive practices, interferes with the right to respect its "home" if the relevant legislation and practices do not provide adequate and effective safeguards against abuse (Société Colas Est and Others v. France, 2002).

**Protection of correspondence** – In *Wieser and Bicos Beteiligungen GmbH v. Austria* the first applicant, was a lawyer as well as a holding company owner and general manager of the second applicant, another holding company, both based in the same office. The court reiterated that the search and seizure operation targeting electronic containing confidential information, conducted to prevent crime without the necessary procedural safeguards constituted a violation of the applicant company's right to respect for "correspondence" under Article 8 of the Convention (Wieser and Bicos Beteiligungen GmbH v. Austria, 2007).

**Protection of Reputation** – In the case of *OOO Regnum v. Russia*, the Court states that a private company's interest in safeguarding its reputation through defamation proceedings may line up with broader economic interests. Consequently, the State enjoys a margin of appreciation regarding remedies it offers under domestic law for a company to challenge allegations that negatively impact its reputation. The Court emphasizes the distinction between the reputational interests of a legal entity and the reputation of an individual in society; while the latter may impact one's dignity, the former lacks that moral dimension (OOO Regnum v. Russia, 2020).

Despite this, the opportunity to explain the potential consequences of this difference is missed, as in previous judgments concerning the reputational interests of legal entities (Regules, 2020). Furthermore, Regules opines that the judgment in *OOO Regnum* does not refer to any specific degree of prejudice that reputational attacks against a legal entity must reach to qualify for protection under the right to private life. Without such a threshold, it remains unclear how this principle applies in cases involving legal persons (Regules, 2020).

### 2.3.3. Freedom of Expression

The provisions of Article 10 of ECHR provide a legal basis for extending this right not only to natural persons but also to legal persons. The Court has broadened its interpretation of freedom of expression to include legal entities, recognizing its application not only to individuals but also to companies and other organizations. The Court considers freedom of expression to be one of the pillars of a democratic society and an essential component for its progress, as well as for self-fulfillment. Thus, freedom of expression encompasses not only "information" or "ideas" that are favorably received or regarded as inoffensive or as a matter of indifference, but also those that "offend, shock or disturb" (Axel Springer AG v. Germany, 2012).

In *Autronic AG v Switzerland* judgment, the Court confirmed that such a right does not prevent states from licensing, broadcasting, television or cinema enterprises and applies not only to the content of information but also to the means of transmission or reception since any restriction imposed on the means necessarily interferes with the right to receive and impart information (Autronic AG v Switzerland, 1990).

Furthermore, the Court stated that "neither Autronic AG's legal status as a limited company nor the fact that its activities were commercial, nor the fundamental nature of freedom of expression can deprive Autronic AG of the protection of Article 10.

### *2.3.4. Just Satisfaction*

The European Court of Human Rights has consistently applied Convention standards regarding restitution in integrum for legal entities, broadening its interpretation of pecuniary and non-pecuniary damages within the framework of Article 41. Henceforth, this type of damages in respect of human rights violations, if the internal law of the High Contracting Party concerned, allows only partial reparation to be made.

In *Iatridis v. Greece*, the Court explicitly articulated that the purpose of the article is to impose on the respondent State a positive obligation to cease the violation and make reparation for its Consequences in order to restore as far as possible the situation existing before the breach (Iatridis v. Greece, 1999).

As mentioned, just satisfaction can be afforded to the applicant in respect of both pecuniary damage, non-pecuniary damage and costs and expenses. Unlike claims for non-pecuniary damages, the Court emphasized in *OOO Regnum v. Russia* that claims for pecuniary damages are based on precise calculations and associated costs and expenses must be converted into euros prior to the award (OOO Regnum v. Russia, 2020).

In the case of non-pecuniary damages, the Court in *Comingersoll S.A. v. Portugal* noted that claims, whether "objective" or "subjective", should consider various factors, including the company's reputation, uncertainties in decision-making processes, disruptions in management (for which precise methods of quantifying the impact are lacking), and to a lesser extent, the anxiety and inconvenience experienced by the management team members (Comingersoll S.A. v. Portugal, 2000).

## 3.    FUTURE RESEARCH DIRECTIONS

Through examination of ECtHR case law, the paper aims to contribute to the ongoing discourse on corporate human rights, offering insights into the role of ECtHR in shaping standards for protecting them. Consequently, future research may consist in the following directions:
* Conducting a comparative analysis between ECtHR and other international human rights bodies regarding the protection of corporate human rights.
* Examining domestic legislative changes influenced by ECtHR and enforcement mechanisms of corporate human rights.
* Investigating corporate accountability in cases of human rights violations and the role played by ECtHR in resolving these disputes.

## 4.    CONCLUSION

The paper stresses the significance of the ECtHR as a paramount institution in litigating alleged corporate (human) rights violations within the European legal framework, ensuring access to justice and compensation for corporations as victims of their human rights violations. Despite not being explicitly recognized in ECHR, human rights and freedoms are entitled to legal persons, albeit to a different extent, depending on their nature. Through the dynamic interpretation of ECtHR, the application of human rights standards in cases involving corporations is enabled. Hence, ECtHR jurisprudence indicates an increasing recognition of the State's responsibility for violations of companies' human rights, leading to a broader interpretation of the European Convention on Human Rights (ECHR) and enhanced protection of corporate human rights.

By attempting to shed light on the context of corporate rights and their intersection with well-established human rights standards, the article aims to contribute to the ongoing dialogue concerning business and human rights within the European legal framework.

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# Calls for Regulation in AI: Examining the Impact of Artificial Intelligence on Contemporary Issues Surrounding Sexual Abuse

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**Abstract:** *Artificial Intelligence holds significant influence in the realm of online sexual abuse, revolutionizing both perpetration and prevention. Through sophisticated algorithms and machine learning, AI facilitates the proliferation of explicit content, grooming techniques, and online exploitation. Its rapid evolution enables predators to exploit vulnerabilities, evade detection, and manipulate victims. Conversely, AI-driven technologies offer promising avenues for detection, intervention, and victim support. The following paper highlights the dual nature of AI's impact on online sexual abuse, emphasizing the urgent need for comprehensive regulation, ethical guidelines, and collaborative efforts to harness AI's potential for safeguarding vulnerable individuals in the digital age.*

## 1. INTRODUCTION

As of November 2022, our world and technology changed drastically, with the introduction of the first ever natural language processing tool Artificial Intelligence, called ChatGPT. (Ortiz, 2023). The language model can understand and generate human-like speech based on the input received. ChatGPT works by using deep learning algorithms to analyze the pattern of the input.

This whole process is incredibly fascinating because it almost seems possible to have a chatbot at your disposal to solve every issue and get help with everything. However, as time has gone by, it's clear that AI models are becoming the norm, thus becoming an integrated part of our lives. It is also safe to say, that AI hasn't always been used for "good" purposes. Unfortunately, there have been numerous cases, even before the public introduction of ChatGPT, of AI being used for nefarious purposes. One of the most harmful and dangerous ones is the use of AI for conducting sexual abuse over the internet thus creating a new climate of fear and a new generation of victims that in some cases have no clue at all, of the abuse taking place. From hacking to deepfakes to hyperrealistic pornographic videos and images, AI can be considered a real threat to sexual abuse victims.

All of this evidence brings us to the main purpose of this article, which is the call for regulation on AI that can be (potentially) used in sexual abuse or sexual exploitation cases. The following article has been written, bearing in mind the waves AI is still doing to our lives and the legal implications and the cases when specifically, AI has been used for sexual abuse of minors and otherwise. We have conducted a thorough desk review of the existing legal initiatives on AI alongside examples of nefarious uses of such technologies.

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## 2.   LEGAL INITIATIVES

Undertaking legal initiatives for regulating such important and impactful phenomena like AI, is no easy fit. One of the main issues concerning legal initiatives in the area of AI is that, often technology is at least 10 years ahead of legislation. Lawmakers from all over the world, more often than not, are not that flexible in writing down legislation or undertaking legal initiatives on important topics. The reasons for this type of attitude are various and too many to count, but the main focus point is that some very debatable event needs to take place for legal initiatives to start.

Nonetheless, various international institutions are working on creating appropriate legislation on the usage of AI, focusing on its ethical use. On June 14th 2023 the EU Parliament and the Commission approved the "Artificial Intelligence Act". This particular piece of legislation is incredibly important not only because it's the first of its kind, on AI, but also because it will serve as a guideline for future legislative acts (European Parliament, 2023).

The "AI Act" emphasizes the usage of AI in an ethical, transparent, and nondiscriminatory way. The Act acknowledges that AI can pose a serious threat and risk and calls for specific regulations in some cases and a total ban in some other cases. Considered "Unacceptable Risk" (European Parliament, 2023), in this category are some of the AI that Such systems include practices like:
1.   Cognitive and behavioral manipulation of individuals or specific vulnerable groups: for example, entertainment games that encourage risky behavior in children.
2.   Social scoring: classifying people based on behavior, socio-economic status, or personal characteristics.
3.   Biometric identification and categorization of individuals.
4.   Real-time and remote biometric identification systems, such as facial recognition.

**High-risk AI** (European Parliament, 2023). AI systems that have a negative impact on security or fundamental rights will be considered high-risk and will be divided into two categories:
1)   AI systems used in products subject to regulation under EU product safety legislation, including toys, aviation, vehicles, medical devices, and elevator manufacturers.
2)   AI systems that are part of specific sectors and will need to be registered in an EU database, such as:
    a.   Management and operation of critical infrastructure.
    b.   Education and professional training.
    c.   Employment, employee management, and self-employment access.
    d.   Access to and enjoyment of essential public and private services and related benefits.
    e.   Law enforcement.
    f.   Migration, asylum, and border control management.
    g.   Legal aid and legal interpretation.

**Generative and General-Purpose Artificial Intelligence** (European Parliament, 2023). Generative and general-purpose Artificial Intelligence like ChatGPT will again need to adhere to some very specific regulations, which are:
    a.   It must be specified that the generated content is entirely generated by AI.
    b.   Model creation should be in a form that may not be able to generate false or illegal data.
    c.   Respect for copyright protection rights.

**Limited-risk Artificial Intelligence** (European Parliament, 2023). This category includes all AIs that pose limited risk, meaning that their use does not directly entail the creation of significant problems and impacts on our lives. However, the risk for this category is not entirely non-existent; the classification given by the European Parliament to them is simply limited risk, influenced by several factors.

AI systems with limited risk must comply with minimal transparency requirements to enable users to make informed decisions. After interacting with the applications, the user can then decide whether they want to continue using them. This includes AI systems that generate or manipulate image, audio, or video content, such as the case of deepfakes.

Another main focal point on the legal hurdles of AI is the essence of the technology itself. What we mean by this, is that AI is designed to evolve. It is not a type of technology that is stable and unchangeable. On the contrary, the more it interacts with people the more it learns and evolves through a process called machine learning. This process can be defined as, computers using data and algorithms to imitate the way humans learn, and with time to increase its accuracy (IBM, 2024).

But why is this important? This is very important because it highlights the true nature of AI which is a type of technology whose main purpose is to evolve itself through interaction with humans. Refining the understanding of the human language, and not only, it provides for better response each time. Bearing this in mind it's obvious that the legislation that regulates AI needs to be specific enough to highlight the negative use of AI and how it can evolve in the future. For this exact reason, legislation that is written for AI must be done in cooperation with scientists and experts in the field.

## 3.   USING AI FOR SEXUAL ABUSE

A very concerning aspect of AI is the usage of AI for creating deepfakes and generating graphic and explicit content for people on the internet. One such case is DeepNude launched in 2019 and had a major impact on the type of sexual abuse conducted with the help of technology. Firstly, we need to answer the question as to what are exactly deepfakes and how do they typically impact their victims.

"Deepfakes" are videos or images generated by artificial intelligence, where specific individuals appear to perform certain actions. It should be emphasized that all these images or videos are entirely synthetic and produced using various technological programs, especially with the use of Artificial Intelligence (Sample, 2020).

It should also be noted that not only the image and figure of a person are replicated almost entirely but also their voice. In these circumstances, the boundary between truth and falsehood, reality and virtuality, is significantly blurred. Victims of this criminal activity encounter extraordinary legal and technical difficulties in removing the images and videos and pursuing criminal charges against those responsible for their creation.

Although in many cases the victims of these activities may succeed in removing the images or videos produced in this way from various online platforms, both victims and individuals who own various websites have very little control over what their website users do. Every time the image or video is downloaded onto computer systems or other alterations that may follow.

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Furthermore, victims often may not even be aware that images or videos of this nature exist; they become aware of the existence of these videos or images either through third parties who may have encountered them accidentally or when the author himself/herself threatens to blackmail them in various ways. In about 60% of cases of unauthorized distribution of private intimate images, the author has close knowledge of the victim. Intimate partners are the main and primary subjects responsible for this type of activity, but close friends or relatives have also often appeared as authors (Brighi, 2023).

This criminal act disproportionately affects women compared to men, and in most cases, the main goal of the perpetrator of the criminal act is to shame and damage the dignity, and integrity of the victim by distributing these images/videos unauthorizedly in various forms.

This criminal phenomenon also known as nonconsensual dissemination of images, revenge pornography, nonconsensual pornography, etc., it's the act of publicly disseminating private images or videos that depict the victim in explicit situations online or offline. Even though, the process most of the time consists of victims sharing the photographs or videos themselves with the perpetrator, with the new technological advancement in the field of deepfakes, it's no longer necessary for the photograph or video to be genuine.

A very famous example of nonconsensual pornography produced with the help of technology is the case of Taylor Swift and the social media network X. In late 2023 pornographic deepfake images of Taylor Swift were first uploaded to the social media network X. Even though the images were available for a limited time online, they were seen and downloaded millions of times by X's users. Finally, after mass reporting, the company deleted the images and blocked its search engine from looking up Taylor Swift. Understandably, this whole incident sparked heated debate on the Internet concerning the very serious risk of pornographic images. If it could happen to a global superstar like Taylor Swift, what would happen to other less famous victims?

A group of senators of the US Congress found this whole incident very concerning and proposed for the first time, an act called the "The Defiance Act", which states that deepfake pornography is digital forgery and needs to be stopped (The Defiance Act of 2024, 2024). In this sense digital forgery can be defined as a visual depiction created through the use of software, AI, machine learning and more, to falsely appear as authentic.

According to the act, about 96 percent of pornographic materials created through Deepfakes are nonconsensual pornography. The numbers are very problematic, which proves and emphasizes once more the need for federal regulation on deepfake pornography in the USA. At the moment of writing this article, the Congress of the USA has yet to act on "The Defiance Act" proposed, however, the situation is very serious and the need for legal amendments needs to be addressed.

Although the "The Defiance Act" is the first of its kind type of bill, and it's still considered quite revolutionary in this field, the issue of criminal charges still prevails. The bill addresses the issue of deepfake pornography as a civil remedy, where the plaintiff has several legal remedies to enact in order to find and remove the content online and to pursue the issue legally. The bill makes no mention of the criminal route, as another option to pursue in cases of deepfake pornography.

In our opinion, this type of stipulation is simply not enough. We are all witnessing every day the role and impact AI is having in our daily lives. It's just a matter of time before AI and deepfakes are

going to be used to mass-produce pornographic content for other people. Between the unassuming victims might also be children, thus, effectively committing a more serious crime.

According to a study done in 2023 on the state of deepfakes, about 99% of individuals targeted for deepfake pornography were women, with various celebrities around the world being the most targeted group of individuals (Home Security Heroes, 2024). South Korean celebrities are also the most sought-after for deepfake pornography (Home Security Heroes, 2024).

It should also be mentioned that it's becoming very easy to produce deepfake pornography, thanks to the multitude of programs that exist online and relatively low costs. Creators of deepfake pornography only need a few photographs that usually are easily accessible and then they can produce quite realistic deepfake pornography with the usage of the number of tools and programs that exist.

It is for this exact reason that civil litigation is not enough to combat deepfake pornography. Criminal amendments should be made to charge and prosecute offenders responsible for producing such content and making it available on the internet, mostly through pornographic websites.

## 4.  CONCLUSION

Humans have been able to modify media for years in one way or another. However, the risks that deepfakes pose for our society are far too many to ignore. From stealing identities to replicating voices, gestures, articulation, etc., deepfakes are now being used to create synthetic pornography.

The creation of deepfake pornography should be alarming for us all, for a few reasons. There are quite a few programs designed on the internet with the sole purpose of producing deepfake pornography of anyone, regardless of age, gender, nationality, etc. These programs, albeit nothing new, are becoming quite sophisticated, being able to replicate almost perfectly the face, the shape of the head, voice, gesticulation and more with quite ease.

Deepfake pornography is becoming a category of its own, and numerous pornographic websites offer this type of porn category. Deepfakes need to be stopped and criminally regulated to combat them and offer proper support for their victims.

Some tools that can be used to stop the creation of deepfakes are by creating equally powerful technological tools that can detect any type of manipulated content and signal it to the appropriate authorities. From a legal point of view, deepfake nonconsensual pornography is still a relatively new concept. Nonetheless, after many scandals that have involved many celebrities all around the world, they are finally getting the attention they deserve. There's still a lot to be done, to protect the best interests of the victims of deepfakes legally, however, a few steps have already been made.

It is also equally important to emphasize the importance of assisting victims of deepfake nonconsensual pornography. They should be given all the legal assistance and resources to remove and mitigate the fake content.

Lastly, deepfake pornography shouldn't be dismissed as a sci-fi scenario that happens only in movies and should be treated as a very serious threat and breach of privacy to us all.

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# Designing an Effective Survey to Assess Interaction Design Practices in the Software Development Sector in Albania

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**Abstract:** *The software development sector in Albania has experienced significant growth in recent years, with the presence of both Albanian and foreign capital. Many sectors of the economy have been positively impacted by the digitalization of their services and operations. However, research studies on the software sector and their practices are limited. Furthermore, studies on integrating interaction design (ID) practices in software development methodologies are yet to be available. The scope of this paper is to identify critical elements that should be considered when designing a survey on ID assessment. The paper analyzes the importance of ID practices, examines similar research surveys on ID implementation, assesses the current landscape of the software sector in Albania, and presents expert opinions on designing and conducting surveys to better achieve the results. Based on the analysis, the authors propose a survey framework customized to the context of the software development sector in Albania.*

## 1. INTRODUCTION

Software has become an integral part of society's function today. The typology of software applications and hardware devices has constantly changed to provide users with faster, more reliable, and easier-to-use features. Software development companies also constantly adapt their development methodology alongside diversifying team profiles. Profiles like software engineers, system analysts, quality assurance, and project managers are now typical in the organizational structure of software companies. However, there is no standard methodology or approach for software development. Authors with different backgrounds, like Villafiorita from a manager standpoint, Pressman and Maxim from a software engineer angle, and Kendall and Kendall from a system analyst perspective, agree on the various software development approaches, mainly categorized into: A. Traditional SDLC models like Waterfall, Spiral, Evolutionary/Prototyping or V-model (Validation and Verification) that rely on documentation and completion of each stage, and B. Agile Methodologies like SCRUM, Extreme Programming, or Kanban that offer a more flexible approach to continuous change (Villafiorita, 2014; Pressman & Maxim, 2015; Kendall & Kendall, 2020).

Every approach differs from each other as it emphasizes its own specific elements. For example, the involvement of users in the development process varies across methodologies. In traditional approaches, it usually occurs at specific stages in SDLC, like information gathering at the beginning or testing the software at the end. In contrast, in agile ones, users could get involved throughout software development (Agile Alliance, 2001), for example, in every sprint planning (Schwaber & Sutherland, 2020). The chosen methodology usually defines the manner of integration with other disciplines. One of these disciplines, significantly connected to software

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engineering and user involvement, is interaction design. Interaction design is the process of creating engaging products that improve the way people communicate, work, and interact (Rogers et al., 2023). *Interaction design* is a complex discipline that involves people with different backgrounds and expertise (Rogers et al., 2023). On the other hand, human-computer interaction (HCI) is an interrelated field with interaction design that focuses on the interfaces between users and computers. Meanwhile, UX refers to the profession in the industry.

The ICT sector in Albania has witnessed significant growth during the last five years. Based on the data provided by INSTAT (2023), during the last five years, the number of companies in the ICT sector has consistently increased, which also suggests growth in the software development sector. The total number of companies has increased by around 65% during the last five years, while the number of companies with only foreign capital has increased by around 85% since 2018. This speaks to Albania as an tech emerging country and a luring market for software development.

During this period, resource profiles have diversified in specific domains, covering activities ranging from requirement analysis to software quality assurance. However, studies on software companies in Albania are limited, while studies on interaction design practices during software development still need to be made available.

The scope of this paper is to understand and determine the critical components that should be taken into consideration when developing a survey study to assess the state of implementation of interaction design practices in the software development lifecycle in Albanian companies. Furthermore, the authors will propose a structure for the potential questions and their typology, as well as a framework for conducting the survey based on the Albanian market conditions.

## 2. LITERATURE REVIEW

Including interaction design practices when developing software products could lead to better usability and software success. For example, both *user participation*—where users are actively engaged in the development or designing processes—and *user involvement*— where users consider the system highly relevant to them, referred to as UPI—have a positive correlation to the system's success (Abelein et al., 2013). A systematic mapping research study found that HCI practices are used more frequently at the start of the SDLC than at the rest of the process. Furthermore, it listed several standard techniques used in system development like a user persona, user scenario, focus groups, prototyping, heuristic evaluation, think-aloud, and expert review (Ogunyemi et al, 2018).

An active research study of two business units in Italy using the cooperative method development (CMD) highlighted practitioners' hesitation to involve users in design activities. Furthermore, it showed that when there are limitations in budgeting and resources, the teams focus more on the implementation of requirements, leaving out UX and usability considerations. The research also showed that even with limitations in budgeting, prototyping, heuristic evaluation, and thinking-aloud tests are valuable techniques in software development (Ardito et al., 2014). During information systems development, the non-technical factors related to people and organizational culture matter more than technical factors. Hence, applying design thinking prior to development is significant for information system design and development (Alahmari & Anandhavalli, 2018).

User-centered approaches to reviewing and redesigning e-government websites by Puspitasari et al. (2018) and Chang et al. (2020) have resulted in better performance and enhanced user experience, indicating the success of the software development process. Moreover, Milosz and Chmielewska (2020) discovered that involving the user through various research methods could result in better interface usability. The findings suggest that incorporating interaction design practices into the software development life cycle is crucial for better results.

ICT technologies and services have been adopted differently throughout various sectors of Albania. In the public sector, the digitalization of government services has progressed rapidly since the presentation of the E-Albania Portal. The portal now provides over 1200 e-services, with more than 250 institutions connected through the GOVnet network, the network that provides secure communication and access to the internet for government institutions (AKSHI, 2024).

In the private sector, for example, the utilization of digital technology and services in the tourism sector surpasses their average use in other economic sectors in Albania (Gjika & Pano, 2020). Meanwhile, in agriculture, in a recent study conducted in 5 different districts of Albania, the use of technology by farmers, measured on the Likert Scale, has a value of 1,55, indicating a shallow degree of digital technology implementation (Tomorri et al., 2024). Moreover, in the financial sector, the digitalization of payment and transfer services has evolved similarly to global trends, but the number of these transactions remains low, in contrast to global tendencies (Xhafaj, 2019). Second-level banks have also increased their spending on the development of digital products along with marketing and communication campaigns promoting their use, which has resulted in reduced costs and branch closures (Pano & Angjeli, 2023).

Regarding ICT technologies, cloud computing implementation in Albania is limited, mainly due to privacy and security concerns (Alite & Shurdi, 2021). Concerning AI and IoT, Albania, like other developing countries, could not immediately benefit because they lack the resources to invest immediately in the short term, in contrast to developed countries that can invest in new technologies without immediate effect (Mema & Basholli, 2023).

The Albanian Digital Agenda 2026 also highlights the need for a more rapid integration of ICT technologies. Its main goal is to provide comprehensive digital services to both businesses and citizens. Furthermore, one of the specific objectives of this agenda is to facilitate and support the digital transformation of companies and SMEs, making them competitive in the region and globally (Official Gazette no. 84, 2022).

Nevertheless, research in Albania about the software development sector is minimal, and the availability of data to support further studies is scarce. A very recent study conducted in 31 companies found that the preferred approach for development was Agile methodology like Scrum or Kanban, with a predominance of 67%, while traditional models like waterfall were used mainly in big corporations like the telecommunication and banking industries (Leka & Hoxha, 2024). Furthermore, the study shows that the leading factors for choosing agile methodologies were flexibility and adaptability, as well as customer requirements (Leka & Hoxha, 2024). However, the study has limitations regarding sample size and focuses mainly on companies surpassing 50+ employees, which does not give a clear picture of the sector. Usually, corporations like banks and telecommunication companies have departments focusing on software development, but most of their employees are profiled in other fields.

## 3. METHODOLOGY

The authors have used an exploratory literature review to address the main research questions: What are the key components to consider when designing a survey to assess the current state of implementing interaction design practices in the Albanian Software Sector?

The research is based on a combination of primary and secondary sources. Primary sources include data collected from public institutions like the National Institute of Statistics of Albania—INSTAT, interviews with practitioners and researchers with expertise in designing and conducting surveys in Albania, and other web resources. Secondary sources mainly include journal articles, conference papers, and books on the specific discipline. IEEE Explore, Scientific Direct, and Google Scholar have been used as the primary search engines.

The research has examined trends in interaction design practices, studies related to the implementation of interaction design practices in software companies, and best practices for survey design. It has also focused on studies of regional or emerging tech countries that share contextual characteristics similar to Albania. The goal of the exploratory review was to identify common patterns, tools, and approaches that provide enough insights to proceed with a design proposal for a research survey on interaction design practices tailored to the needs and conditions of the Albanian software sector.

## 4. RESULTS AND FINDINGS

### 4.1. Officials' statistics on the ICT sector

INSTAT provides some high-level data regarding the number of companies operating in ICT sector in Albania. The following table presents the number of active companies based on NVE - nomenclature of economic activities. NVE is based on the NACE classifier rev. 2, developed by Eurostat (2008). The classes that are of interest for this study are:
1.   62 - Computer programming, consultancy, and related activities (INSTAT refers to as Information technology services),
2.   63 - Information service activities.

As the table shows, the number of active companies operating in these classes is continuously increasing, following the same trend of the general ICT sector. Further breakdowns based on the companies' activity are not available.

**Table 1.** Active companies based on NVE from 2010 to 2022

| NVE - Nomenclature of Economic Activities | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 62 Information Technology Services | 166 | 215 | 258 | 256 | 301 | 656 | 884 | 1096 | 1213 | 1371 | 1606 | 2231 | 3048 |
| 63 Information Service Activities | . | 4 | 6 | 9 | 19 | 91 | 278 | 540 | 503 | 539 | 574 | 537 | 554 |

**Source:** INSTAT, 2023

However, these classes do not include companies operating in the telecommunication industry, the banking and financial service industry, or several e-commerce companies that have a considerable software development unit for building digital products around their services. Even

though they may represent a low number, their number of employees, number of customers, and annual turnover indicate the need to include them when analyzing interaction design practices in software development.

Looking at the structure of the companies, as presented in graph 1, the data from 2022 shows that small companies, with a maximum of 4 employees, are predominant in the ICT sector with 86% of the total number. Companies with 5-9 employees are 5,6%, companies with 10-49 employees are 6,1%, and companies with more than 50 employees constitute only 1,7% of the total number. The predominance of small companies with a maximum of 4 employees, may also reside in the fact that individuals who provide services like programming or other consultancy activities in ICT register themselves as companies instead of being employed due to preferable taxation law before 2024.

Conducting a study for interaction design practices on small companies of up to four or even nine employees poses a question on the quality of the insights. Since interaction design is a discipline involving individuals from different backgrounds, the implementation of its practices could not be adequately evaluated because of limited capacity. Still, they could provide some valuable information related to the partial implementation of these practices, methodologies, or artifacts used.
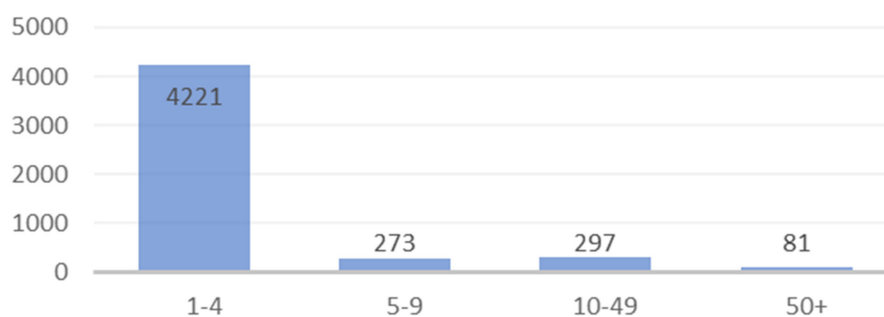


**Graph 1.** Number of companies in the ICT sector based on company size
**Source:** Authors based on INSTAT, 2023

## 4.2. Common patterns in survey design

The decision on what data should be collected is one of the essential elements when designing a survey. In order to better structure the questionnaire, the authors have analyzed several research surveys on interaction design practices, software development methodologies, and testing techniques. This analysis aims to find common patterns in questions and survey structure. A summary of findings for each paper reviewed is found in Table 2.

Based on a simple theme analysis, the common pattern is structuring the survey into sections, each with a specific goal. The main themes identified after analyses could be summarised below:
1. **Respondent Profile:** The information to be collected is related to age, education, role in the company, responsibilities, and work experience.
2. **Company Profile:** This group of questions focuses on information regarding company size, operating industry, company projects, products developed, staff, and resources alocation.
3. **Software Development Practices:** This section collects information regarding the development methodologies, factors influencing the selected methodology, and adoption time.

4. Other **practices integrated** into SDLC consist of:
   a. Questions on quality assurance and business development practices,
   b. Questions on testing methodologies and evaluation criteria,
   c. Questions on HCI implementations, the importance of UX, client/user involvement in the design and development process, and usability testing.
5. **Challenges and Strategies:** The questions are mostly related to the main difficulties and challenges, cooperation with higher education institutions, or strategies.

**Table 2.** A summary of patterns in similar studies

| Research Title / Authors | Key Findings |
|---|---|
| A Survey of User Experience Practice: A Point of Meet Between Academic and Industry (Hussein et al, 2014) | The goal of this research was to evaluate the user-centered design practice among HCI professionals. It included questions on respondents' profiles such as age, educational background, type of company they work for, the number of people that practice UX in the company, role in the company, and job responsibilities. The second group of questions assessed the attitudes of the respondents toward UX, such as the reason for not involving the users in design, the importance of UX and usability, current projects and their development methodologies, and their level of influence in design decision-making. |
| A survey on the practices of mobile application testing (Santos et al, 2020) | The survey was intended to review the level of testing practices in mobile companies. It was administered through a web form sent to 40 companies in Sao Paolo, resulting in 24 responses. The questions of the survey were structured into two groups: a) respondent demographic like age, gender, educational level, role, years of experience, and company size; b) practice assessment with questions like development type, testing levels, testing techniques, testing tools, evaluation criteria, and challenges. Moreover, the researchers collected emails for subsequent clarifications if needed and used qualification questions for participants' answers. |
| Software engineering methodologies in programming companies in Albania (Leka & Hoxha, 2024) | The research examined existing software development methodologies in the Albanian Software sector and evaluated if they are prepared to transition to agile methodologies. The survey was structured into the following sections: participant profile evaluating working experience and position, company profile evaluating size and industry, questions related to the purpose of research like the type of software development methodology, factors that have influenced the choice of methodology, adoption time of the selected methodology, quality insurance practices and client/user inclusion in the software process. |
| Questionnaire Approach for Assessing Software Engineering and Quality Assurance Practices (Hynninen & Jantunen, 2022) | Through a questionnaire, the research aims to examine software engineering and quality assurance practices. The questionnaire had a total of 39 questions, structured in 6 sectors as follows: questions on the organizational unit, questions on company projects, products, staff, and resource allocation, questions on software development practices, questions on quality assurance practices, questions on business development practices and questions on partnership with higher educations. |
| Software Testing: Survey of the Industry Practices (Hynninen et al, 2018) | The survey aimed to assess industry practices related to software testing. It was administered online and used the five-point Likert scale. The survey was organized into sections like organization profile, software testing, and process models, each divided into multi-item questions. |
| Human-Computer Interaction in Ibero-America Academic, Research, and Professional Issues (Collazos et al, 2016) | The research focused on human-computer interaction aspects in Ibero-America countries that are associated with academia, research, and industry. The survey was structured into three parts: personal profile, such as name, organization, and work experience on HCI; aspects regarding HCI education; and lastly, questions about research and companies' experiences and main difficulties. |
| Impact of the new Software development methodologies in Puerto Rico: An exploratory survey (Alvear-Suarez et al, 2020) | The research is focused on the software sector in Puerto Rico. It seeks to identify what software development methodologies are used and evaluate the integration of usability techniques in the software development lifecycle. The survey was organized into sections. The questions on the company profile focused on geographical location, type of activity, and size. The questions on the interview profile focused on the role in the company, education, and work experience. The questions regarding software development included methodology, team size, and knowledge of agile methodologies. The next group of questions focused on HCI and usability techniques and the respective phases of software development where they are used. |

**Source:** Own research

## 4.3. Expert Opinion

In the absence of sufficient studies on software companies and the lack of detailed information on the ICT sector in Albania, the authors asked for the opinions of two experts in designing, conducting, and analyzing surveys. Both experts, Prof. Assoc. Ines Nurja and Mrs. Helda Mitre, were provided with a description of the broad discipline and the potential data to be collected from software companies. In the following table, there is a summary of their insight based on the questions asked.

**Table 3.** Summary of Experts Interview

| Question | Expert 1 (Prof. Assoc. Dr. Ines Nurja) | Expert 2 (Mrs. Helda Mitre) |
|---|---|---|
| How large should the sample size be to achieve a reliable assessment of these practices? What is the minimum size of the company to be taken into consideration? | The sample chosen at random from a database of all companies must be at the level of representation based on the number of employees and the percentage in the market.<br>All VIP companies in terms of income and number of employees, should be part of the sample. From the remaining part, up to 10% are chosen to be well represented (it is possible to choose the sample based on strata, which are determined by the number of employees and income). | If only companies falling in the NACE classes 62-63 will be interviewed, the suggestion is to focus on companies with more than ten employees. If a broader coverage study is required, you may focus on companies with more than five employees. If full coverage is required, 1-4 employees can be drawn, but the sample size will increase, increasing costs.<br>Depending on the limitation on budgeting, a suggestion might be to select only companies with more than 20 employees.<br>Another variant can be with samples of companies with 10-19 employees, samples from companies with 20-49 employees and all the companies with more than 50 employees. However, in this case, you must have complete information regarding the number of employees for each company. In this case, all 300 companies are covered with 150 companies from the sample. |
| What types of questions are most effective: multiple-choice or open-ended questions? | Multiple-choice questions are used for well-structured questions.<br>For issues where there is room for discussion, combined questions can be used. Several options are given to be selected, and if none of them is chosen, an open option should be given as an alternative. | The general rule of designing a questionnaire is to write the question with as many options as possible. The open options are left only in cases where not all options can be identified. Totally open questions are used only when the researcher wants to know the opinion of the companies to help him write the report to address the problems or suggest solutions. |
| Would it be helpful to implement a pilot questionnaire before launching the main study? | The pilot is very important because it tests the logical flow and accuracy of the questions, measures the level of understandability, and helps the data dump program. | Piloting is always essential. The questionnaire could be tested in two or three companies to evaluate its design, difficulty in answering, forgotten options, or the effectiveness of the data collection method. |
| What structure do you suggest for the questionnaire to achieve the best possible results without making it too burdensome for the respondent? Number of questions? | About 20 questions that have a logical flow that helps to achieve the purpose for which it was carried out. Completing the questionnaire should not take more than 10-15 minutes.<br>It's good practice not to start the questionnaire with questions that show the purpose for which it was made. It should begin with general questions about the purpose, and direct questions should be left for the end of the questionnaire. | Completing the information should be at most 15 minutes. In cases where more time is needed, the practice of leaving the questionnaire to the person who fills it out and collecting it in a second moment should be applied. The organization of questions in sections is recommended according to the topic of the questions such as the demography of the company or questions about the practices followed. |
| What are the most effective methods of administering a questionnaire and collecting data? | Based on the company profiles, the most accurate way is to administrate it through the web (CAWI). | Interviews with surveyors and data-entry programs on tablets (CAPI), telephone interviews (CATI), or through the web (CAWI) could be applied. The general rule is to combine methods to reduce costs and increase the response rate. |

| Who is the most suitable person to complete the questionnaire, and how much work experience should they have? | The questionnaire must be completed by experts with at least one year of experience in the field. | The most suitable person is the one who leads the software development department in the company. |
| --- | --- | --- |

**Source:** Own research

The most concerning issue is related to the selection of the sample. For a well-represented sample, the companies should be divided into strata based on two main factors: income and number of employees. Companies considered VIP (in terms of size and income) should be included in the sample. On the other hand, the need for more sufficient data related to income and size creates more difficulties in a proper sample selection. Regarding the other questions, the survey should be designed mainly with multiple-choice questions, preferably organized in sections, and needs to be filled in less than 15 minutes.

Furthermore, it needs to be completed by experts in interaction design or a Team Leader of the software department. Experts agree that piloting the survey is very important for further refinements. Based on the nature of the companies surveyed, the questionnaire could be administered online.

### 4.4. Survey Design Proposal

After carefully reviewing common patterns in design surveys, supporting research studies regarding digitalization and the ICT sector, official statistics on the software sector, and considering expert opinions on designing, conducting, and analysing the survey, the authors propose that the questionnaire should have the following features:
1. The survey should be organized into four sections, with one additional section consisting of entirely optional questions. The sectors and their central theme should be:
   a. Company profile: These questions are constructed to understand better the organizational context in which Interaction/UX Design practices are implemented in the Albanian software industry and collect information regarding company size, time in the market, type of activities, projects or products developed, the industry where they operate, employee profiles, team size, type of capital (foreign or Albanian) and resource allocation.
   b. Interaction design practices: Through this question, the degree to which these practices are integrated into a company's daily operations and the specific roles or departments primarily involved in these tasks are understood. This information gathers essential insights into how Interaction/UX Design is perceived, valued, and used by the company. The list of questions could include software development methodology, whether Interaction/UX design practices are part of the development process if there exists an Interaction/UX Designer in the company, the main practices of Interaction/ UX Design, the factors influencing the selected approach, whether the client/users are involved in software development and how feedback from users could be integrated into the process.
   c. Breakdown of specific practices: In this section, specific integral methodologies of Interaction/UX Design, such as user research, UPI practices, user journeys, prototyping, or usability testing, are further explored. Through this, the authors understand whether these practices are implemented within the company, how they are implemented, the tools used for the implementation, or the reasons for not using these practices.

d. Future Directions: This group of questions focused on the future plans, whether the practices will be more central in SLDC, reasons for the potential reduction, perceptions of the challenges, and strategies companies believe are essential for progress in this area.

e. Respondent Information (Entirely Optional): Answering the questions about the person who completes the questionnaire regarding name, email, work experience, position, or company name should not be mandatory, but their completion proves the reliability and integrity of other data. The reason for not being mandatory is strongly related to maintaining anonymity.

2. The questionnaire should have 20 to 30 questions, multiple exhaustive options should be provided for each question, with the integration of open options where necessary and should not take more than 15 minutes to be completed.

3. The best approach to administer the questionnaire is through the web, using the CAWI method. It should be completed by a team leader, project manager, business analyst, or any other person with work experience who has profound knowledge of his company's software development lifecycle.

For well-represented research, the size of the entire population must be defined first. Then the methods described in the section on expert opinions should be applied to determine the sample. However, for the population to be complete, regarding the scope of the study, companies from other NVE classes, such as telecommunications and financial companies, should be included. Furthermore, interaction design is considered an interdisciplinary field. If there are budgeting constraints or the absence of sufficient data related to income and company size, a sample from companies with more than ten employees could be used.

## 5. CONCLUSION

Interaction design practices are continuously integrated into the software development lifecycle. Practices like user-centered design, user participation and involvement, prototyping, user journeys, user persona, usability testing, heuristic evaluation, or thinking aloud have been proven valuable to the development units. The software development sector in Albania has witnessed significant growth in recent years, with the presence of both Albanian and foreign capital companies. Small companies are predominant, and those with over ten employees constitute only 8 percent. Research studies on software methodologies are few, while studies on practices related to interaction design are absent. The critical elements when designing a survey to assess the level of interaction design practice implementations are the typology of the questions, the decision on what information should be collected, who the designated person is to complete the survey and sample identification.

After carefully reviewing the factors, the proposed survey should be structured in theme sections, including respondent information (optional), company profile, interaction design practices, breakdown of specific ID practices, and future directions. The respondent should be a company employee with work experience who has profound knowledge of his company's software development lifecycle. Based on the purpose of the survey, limitations of supporting research studies, and difficulties in retrieving data to create a well-represented sample, it is suggested that it should be delivered to companies with more than 20 employees. The contributions of this paper on analysing and evaluating the critical elements for a survey on ID practices, altogether with the proposed design for a survey, are of great importance that creates the possibility for future studies on the level of ID implementations in Albania and also in the countries with similar context.

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# Prototype Proposal for Urban Air Mobility in the Albanian Air Space

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**Abstract:** *Urban Air Mobility (UAM) is a modern solution to urban transportation challenges, offering a promising alternative to traditional modes of travel. This paper investigates the state of the art of this alternative solution and a system prototype proposal in the context of Albania. Several challenges such as vortex wake & jet blast phenomena, wind risk, obstacles, and regulatory legislation are addressed through an analysis. The idea behind this proposal is to innovate traveling in Albania through UAM using special air taxis. In the proposal is suggested to establish two vertiports at Tirana airport and one in the city, which will serve as key hubs for air taxi operations. From an economic perspective, the introduction of UAM can stimulate economic growth by attracting tourism, generating employment opportunities, and new opportunities for local businesses. Moreover, UAM has the potential to alleviate traffic congestion and reduce carbon emissions, contributing to a more sustainable urban environment. By ensuring a good implementation, it can enhance the overall quality of life for residents and visitors alike.*

## 1. INTRODUCTION

The advent of electric Vertical Take-Off and Landing (eVTOL) vehicles, characterized by their low noise and emissions, is significantly elevating the significance of passenger air transport within urban regions. The utilization of Urban Air Mobility (UAM) or air taxis to address urban traffic congestion is gaining attraction, with manufacturers highlighting electric vertical takeoff and landing (eVTOL) aircraft.

Since every new technology is compared to a similar existing one, the conflict arises as to why these new flying taxis are a better solution than existing helicopters. However, according to Archer Aviation Inc. (2021), an eVTOL manufacturing company, UAM with EVTOLs offers numerous advantages over traditional helicopters. eVTOLs are more efficient, safer, and faster, with lower operating costs and reduced noise pollution. They can take off and land vertically, making them ideal for urban environments. Additionally, eVTOLs have larger passenger capacities and lower carbon footprints, making them environmentally friendly.

For example, in metropolitan cities, such as Los Angeles and New York, an average commuter spends over 90 min in traffic increasing stress and anxiety (Kawabata & Shen, 2006). Such congestions also lead to 330 grams per mile of $CO_2$ emissions into the atmosphere (Barth & Boriboonsomsin, 2009). For instance, Manhattan incurs annual losses of up to $20 billion due to traffic congestion, with fuel and vehicle operating costs contributing significantly (13%) to the economic burden (Rajendran, 2021). Against this backdrop, numerous logistics firms and aviation organizations are actively exploring the potential of UAM through the development of innovative flying taxi services.

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Deloitte states that the UAM and Advanced Air Mobility market will reach US $115 billion dollars annually by 2035, creating more than 280,000 high-paying jobs. According to Wisk (2023), the construction of a twenty-vertiport network would generate "2,133 jobs, $174.0 million in labor income, and $423.6 million in economic output." The State of Ohio estimates that the industry will create 15,000 new jobs and generate 11.4 $ billion in State GDP growth and $2.5 billion in tax revenue by 2045. However, the white paper digs into smaller-scale analyses compared to previous studies, focusing specifically on Tirana, a city that, while smaller, is experiencing rapid growth. Despite its size, we aim to explore the economic implications of UAM in an expanding city with limited vertiport infrastructure.

UAM is recognized as a disruptive service (Garrow et al., 2021), and the capacity of eVTOL aircraft depends on the available infrastructure, specifically vertiports supporting eVTOL services (Straubinger & Fu, 2019). Various factors, including weather conditions, electromagnetic interference, interference with existing infrastructure and physical obstacles may pose challenges to the reliability of UAM passenger services (Reiche et al., 2021). According to Rahman et al. (2023), ongoing tests are being conducted on numerous eVTOL prototypes to ensure regulatory compliance (Willey & Salmon, 2021), and initial network operations are in progress (Treeck & Reuter, 2019). Thus, vertiports in public transportation systems should provide station-to-station travel options (Ploetner et al., 2020). Integrating vertiports into the current transportation system, especially public transit, ensures accessibility for everyone (Bauranov & Rakas, 2021). Both vertiports and public transit stops share the common principle of designing the network to attract passengers (Fadhil et al., 2019).

Vertiports, commonly characterized as medium-sized eVTOL facilities, often include one landing pad and can host up to three parked aircraft. These vertiports/vertipads could cost $200,000 to $400,000 to build and $600,000 to $900,000 per year to operate (Johnston et al., 2020). A significant advantage of eVTOL vehicles is their ability to use specific infrastructure for takeoff and landing, like facilities on top of tall buildings (Kai et al., 2022).

When deciding where to place vertiports, we need to think about challenges like public approval, noise rules, air traffic limits, land availability, and the high expenses of building infrastructure. These factors make it harder to design eVTOLs. Additionally, forecasting UAM demand presents challenges due to uncertainties surrounding factors like pricing strategies, trends in telecommuting, and the absence of Global Positioning System (GPS) trace data (Rahman et al., 2023). These uncertainties complicate the process of identifying suitable vertiport locations. However, in this prototype, reference is drawn from established vertiports near major hubs like airports, exemplified by the successful implementation of a vertiport at Fiumicino Airport (Volocopter, 2022). Various studies have investigated different factors influencing the demand for vertiports and UAM services. Some research emphasizes the importance of population density, suggesting that vertiports should be strategically located in densely populated urban areas (Schweiger & Preis, 2022).

Hence, considering these diverse aspects, the prototype aims to evaluate the feasibility of investing in, implementing, and integrating UAM in Tirana city. This involves adapting to airport and city infrastructure and assessing technical limitations while ensuring compliance with international and national regulations. Also, population income and employment benefits are a key factor in the planning process.

## 2.  METHODOLOGY

In this paper is conducted a literature review to situate our research scope within existing knowledge. The focus was on exploring the concept of UAM, its definition, implementation, and usage. Furthermore, key features and components of UAM are explored such as eVTOL aircraft models and characteristics; infrastructure, e.g., vertiports or skyports; regulatory considerations, e.g., safety standards, certification processes, and operating regulations; environmental benefits, e.g., mitigating greenhouse gas emissions and improving air quality in urban areas; economic impact, e.g., new employment opportunities and possible incomings; technical aspects e.g., vertiports position, route calculation, vortex wake & jet blast phenomenon, wind rose analysis and other obstacles and dangers to the navigation.

Referring to Sommerville (2019, pp. 45-54) a system prototyping model goes through several phases that are as shown in Figure 1: identification of requirements, design, development, evaluation, refinement and iteration and finalization.
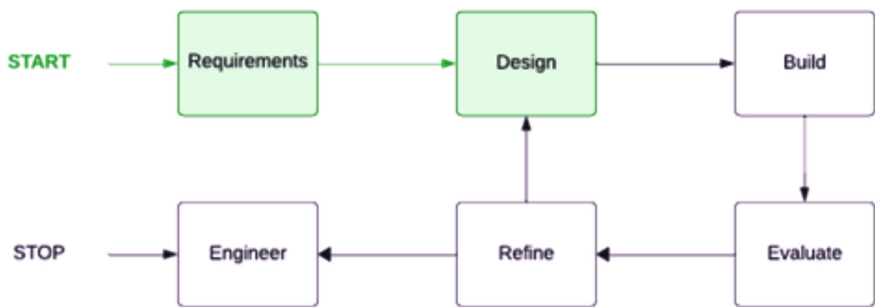


**Figure 1.** System prototyping model
**Source:** Authors based on Sommerville, 2019, pp. 45-54

Figure 1 shows the phases that are done so far in this research. The following section shows the system prototype proposal where are analyzed different technical requirements when creating a UAM feasibility such as vertiports locations, UAM aircrafts models, flight profile and routing, legislation and normative framework, wind and other obstacles, phenomena such as vortex wake & jet blast. The first design of the model shows the possible implementation of the system prototype with two vertiports near TIA and another one at Tirana Olympic Center. Also, the best route is calculated where are taken in consideration the different aspects analyzed in the requirement phase.

## 3.  PROPOSAL

Recent years saw exponential growth in UAM aircraft manufacturers, reaching about 250 companies by 2021. However, many remain in conceptual phases without a defined Entry Into Service (EIS) date. Focusing on technologically advanced manufacturers like Volocopter, EHang, and others provides a realistic basis for study. The two mentioned models are shown in Figure 2, where the features to be considered are: number of seats, maximum payload, altitude, maximum speed, autonomy range (with maximum payload), number of propellers, aircraft height, aircraft width, wing, and autonomous piloting.

Related to flight profile encompasses the following key phases (Figure 3): vertical take-off, climbing transition, ascent to cruising altitude, descent transition, and final grounding.

**Figure 2.** An illustration of the EHang 216 and Volocopter UAM aircraft
**Source:** Marzouk, 2022
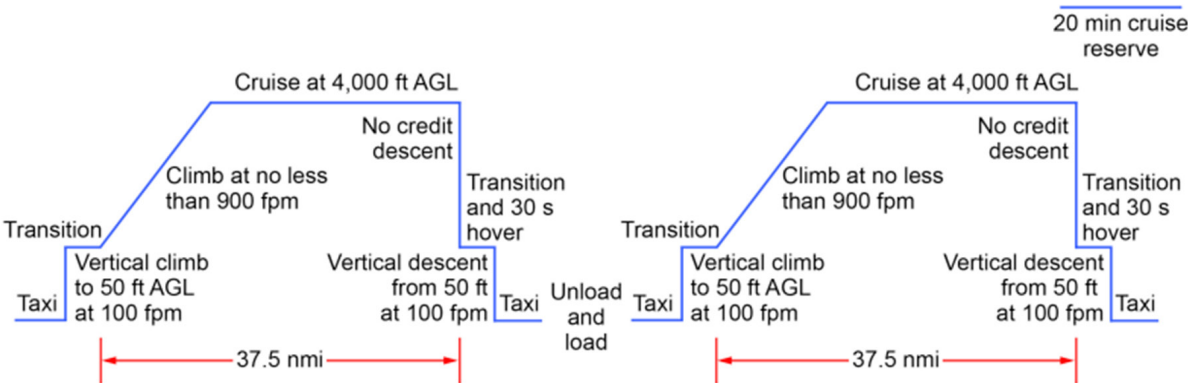


**Figure 3.** Flight profile of a generic UAM aircraft
**Source:** Patterson et al., 2018

Unlike helicopters, eVTOLs often change configuration during the transition, requiring at least a 10-second segment at max power. Climbing ends at 2,000 feet, followed by mirrored descent, transition, and final taxi, meeting take-off and landing requirements. Proposed vertiports match standard UAM infrastructure specs. Conclusively, the analysis assesses the standard flight profile of UAM vehicles for routes linking Tirana and Tirana International Airport (TIA). Subsequently, the review will address risks and aspects associated with vertiport implementation.



**Figure 4.** Site Identified for the vertiport in TIA at the Multi-Storey Car Park D, east side of runway 36 and Tirana Olympic Park are proposed
**Source:** Own calculation using Google Earth

Another factor to consider is the selection of appropriate vertiport locations which involves detailed consideration of various criteria, as outlined by Rahman et al. (2023). Drawing inspiration from past implementations, like the vertiport at Rome Fiumicino Airport (Volocopter, 2022), two potential locations within TIA and one location in Tirana city are proposed. Adhering to EASA regulations, these sites ensure safe integration with existing commercial aircraft infrastructure. Figure 4 shows the chosen locations delimited with a red circle over a Google Map.

Nearby vertiports to TIA raise concerns about the impact of wake vortex and jet blast from larger aircraft on UAM light vehicles. Wake vortex is turbulence caused by aircraft, especially dangerous during take-off and landing (Figure 5). It's created by pressure differences on the wing, forming swirls that can disrupt smaller aircraft. Larger planes produce stronger vortexes, which can pose risks to smaller ones, especially during critical flight phases.
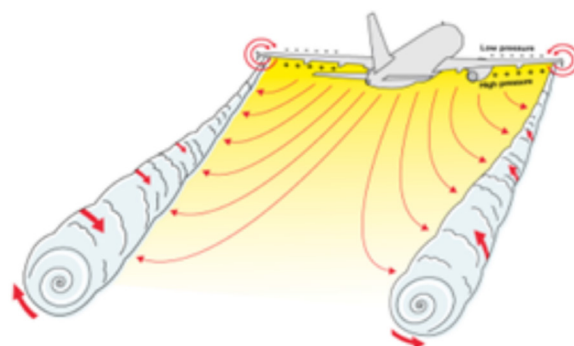


**Figure 5.** Depiction of wake vortices
**Source:** Lelaie, 2024

Jet blast is when the airflow from aircraft engines affects nearby aircraft positioned behind them (Figure 6). This effect is stronger with more powerful engines and is most pronounced during take-off. The risk for aircraft entering this zone is encountering strong winds, which could result in partial or complete loss of control.
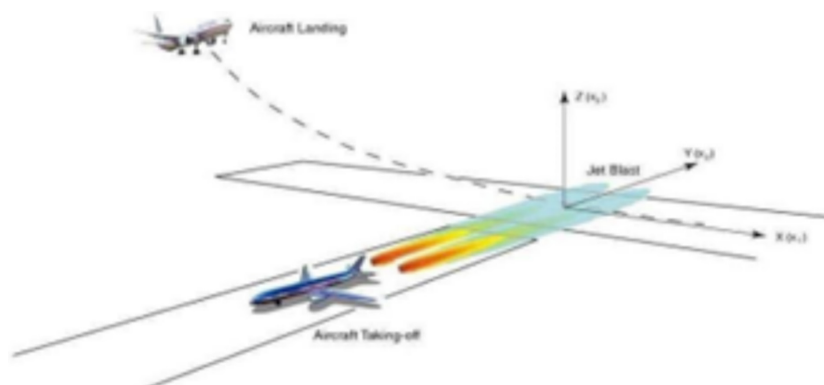


**Figure 6.** Schematic representation of the jet blast phenomenon
**Source:** Slaboch, 2012

Two new regulations have been recently issued by EASA. One focuses on UAM aircraft operations (EASA, 2022), while the other pertains to the construction and operation of vertiports The second regulation regarding vertiport construction (EASA, 2021) stipulates the distance between the Final Approach and Take-Off (FATO) edge and the runway edge based on the maximum takeoff mass of the aircraft.

**Table 1.** Minimum distance between edge of FATO and edge of runways/taxiways

| If airplane mass and/or VTOL-capable aircraft mass are | Distance between FATO edge and runway edge or taxiway edge |
|---|---|
| up to but not including 3 175 kg | 60 m |
| 3 175 kg up to but not including 5 760 kg | 120 m |
| 5 760 kg up to but not including 100 000 kg | 180 m |
| 100 000 kg and over | 250 m |

**Source:** EASA, 2021, 2022

The legislation also states that the FATO must not be positioned in places where (Table 1):
1. Jet Blast from nearby aircraft may cause severe turbulence.
2. There is the possibility of wake turbulence.

Since the airport of Tirana usually operates up to a category with MTOM < 100.000 kg, the vertiport must be located at least 180 meters from the runways or the closest taxiway. To address the two phenomena (jet blast and wake turbulence) described, both vertiports effectively mitigate and address these concerns as shown in Figure 7. The position of vertiports also meets the EASA requirement of 180 meters between the FATO and runway for safe simultaneous operations. By doing so, this compliance ensures operational safety and enables seamless UAM integration at the airport.



**Figure 7.** Distance between two proposed FATO-s and taxiways and runways
**Source:** Own calculations using Google Earth

Another risk to be addressed is the wind. The alignment chosen for the orientation of the vertiports' approach and take-off directions should account for the predominant wind patterns likely to impact the areas where the facilities are situated. Given that eVTOLs must adhere to wind limits specified by the manufacturer to ensure safe operations, maximizing vertiport utilization irrespective of wind direction relies on informed assessments of prevailing wind conditions (METAR data for TIA, weather station with data in the public domain for the vertiport in Tirana Olympic Park), the utilization coefficient (CU) of the vertiport should be obtained for each site of interest through the analysis of the wind rose, which will make it possible to detect the percentage of the prevailing winds and the directions from which they blow.

For the initial take-off and final approach phases, it was recommended to consider a minimum of "17 knots [31.5 km/h] of consistent relative wind" in the proposed Means of Compliance (EASA, 2021). A cursory examination of public weather data concerning Tirana Airport as can be seen in Figure 8 indicates that wind speeds were typically below 17 knots for the majority of instances (Weather Spark, 2023). Consequently, it can be inferred that aircraft such as the Volocopter could feasibly operate at the vertiport from all directions for a significant portion of the time as stated in Schweiger & Preis's work (2022).
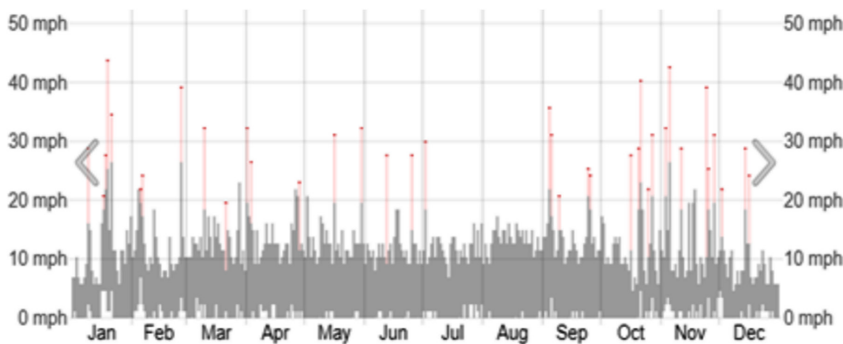
**Figure 8.** Wind Speed for the year 2023 at TIA
**Source:** Weather Spark, 2023

The next challenge to address is finding and marking obstacles around TIA and the city that could affect vertiport operations. Currently, only the area near TIA is regularly checked for obstacles by the airport management for commercial airplanes. But beyond this area, there isn't an official list of obstacles. So, is needed to come up with a simple method to make a useful list of obstacles. The method used, relies on Google Earth images, which are used to spot and mark any potential obstacles. After identifying an area of interest of approximately 261 square kilometers related to possible routes from TIA to Tirana city. Different surfaces were also obtained for different altitudes, starting from 200m above mean sea level up to 30, with an interval of 10m. Therefore, it has been verified, that for each surface of the grid, the obstacles regarding intersection with buildings, hills, etc., for the minimum altitude are shown in Figure 9.
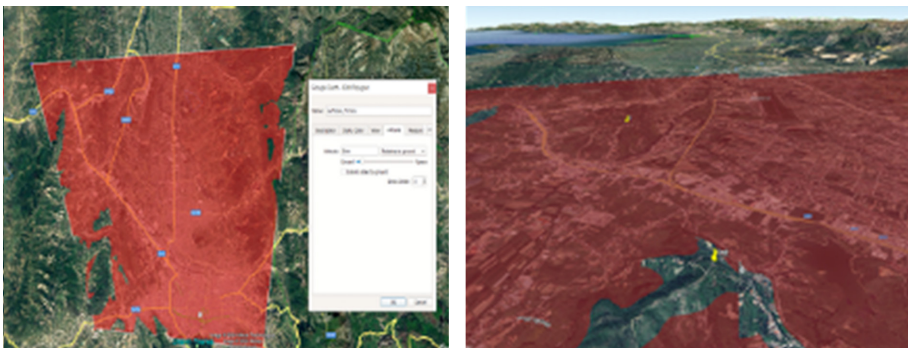


**Figure 9.** Surface for identifying potential obstacles on Tirana and TIA
for 30m above mean sea level
**Source:** Own calculations using Google Earth

Once the wind patterns and obstacles around TIA are known, take-off and landing routes can be planned. Each vertiport at TIA has two areas for landing and take-off, following EASA standards. For each vertiport, surfaces should be defined like FATO and Touchdown and Lift-OFF areas (TLOF). These surfaces should be sized according to aircraft dimensions and regulations. The designed model should guarantee efficient use of the surfaces, with a coefficient of use (CU) of at least 95% and should be obstacle-free. Other factors that should be considered include avoiding populated areas, railway tracks, and no-fly zones, as well as minimizing flight distances between vertiports. All of these factors can be analyzed in a further research study.

In the end, is considered the economic growth from new opportunities brought by the UAM sector. Given that the Tirana–Durres metropolitan area hosts 37% of Albania's population and

contributes 48% of its GDP (Kapetanakis et al., 2024), and with Tirana International Airport handling a record-breaking 7.2 million passengers (TIA_Air_Traffic, 2023), strategically locating vertiports in this region appears economically viable.

## 4. FUTURE RESEARCH DIRECTIONS

Further research can explore optimization techniques for UAM operations, including route planning algorithms, scheduling strategies, and fleet management systems. Having an extensive analysis in exploring public perceptions, attitudes, and acceptance of UAM technologies and infrastructure can be crucial for successful implementation is needed as further research. Conducting a detailed economic impact assessment of UAM deployment, including job creation, GDP growth, and investment opportunities, can provide policymakers and stakeholders with valuable insights into the sector's economic potential and benefits, in order to pass from a proposal to a real-world implementation.

## 5. CONCLUSION

The advent of UAM represents a transformative jump in urban transportation, promising efficient, safe, and environmentally friendly alternatives to traditional modes. This paper propose a system prototype based on the potential of UAM, focusing specifically on its feasibility and implications in the rapidly expanding city of Tirana and its tourism industry.

Through a comprehensive literature review, it has become evident that UAM, facilitated by eVTOL aircrafts, holds immense promise in alleviating urban traffic congestion and addressing associated environmental and economic challenges. By leveraging eVTOLs' capabilities for vertical takeoff and landing, coupled with their lower operating costs and reduced noise pollution, UAM presents a compelling solution for urban transportation.

However, the implementation of UAM has to overcome various technical, regulatory, and logistical challenges. From identifying suitable vertiport locations to mitigating risks associated with air traffic and weather conditions, numerous factors must be carefully considered and addressed.

In light of these considerations, this paper proposes a system prototype implementation in Tirana, outlining key steps ranging from aircraft selection to vertiport design and regulatory compliance. By adhering to established protocols and leveraging insights from past implementations, Tirana can navigate the complexities of UAM integration while maximizing its benefits for residents and the economy.

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# A Comprehensive Review of Deep Learning-Based Image Segmentation Architectures Applied to Various Diseases

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**Abstract:** *Image segmentation plays a significant role in facilitating the arduous process of medical image analysis. There are numerous ways to perform image segmentation, but deep learning architectures have brought about a revolution in this field by automating it and improving the accuracy of the results. However, due to the complex nature of X-ray, MRI, or Ultrasound medical image modalities used for diagnosis, selecting the appropriate segmentation architecture becomes a challenging task.*

*This review follows a systematic methodology to screen the literature and explore the available deep learning-based segmentation architectures applied across different diseases. It aims to contribute to existing research by identifying if in the state-of-art exists any approach that can be adaptive for a broader range of diseases. Furthermore, it seeks to evaluate computational and performance efficiency when there is evidence.*

## 1. INTRODUCTION

Medical image modalities comprise an important tool that can help in the accurate diagnosis of various diseases affecting the human body, as well as identify issues related to specific parts of an organ. To better achieve the latter, medical image segmentation plays an important role and should be performed before diagnosis (Khouy et al., 2023).

Selecting the appropriate architecture to perform segmentation is a challenging task, especially when dealing with medical images. Factors such as the wide range of diseases that can be present in a given image, the complexity in identifying the specific issue or disease, the limited dataset size available, and the computational efficiency in terms of time and resources, make this choice even more difficult. Deep learning approaches have shown to be a promising tool for the automation of the medical image segmentation task (Rich et al., 2023).

This comprehensive review aims to answer the following questions:

**RQ₁:** From current state-of-the-art research, which image segmentation architecture shows adaptability across various diseases?

**RQ₂:** Which performance evaluation metrics are frequently employed to measure the effectiveness of medical image segmentation architectures?

**RQ₃:** Does the literature provide evidence on the computational efficiency of the used medical image segmentation architectures?

The study is organized as follows: Section 2 provides a short overview of the existing literature. Section 3 presents the employed methodology to conduct this comprehensive review. Section 4 answers the research questions by analyzing the results obtained from the final selected papers. Section 5 concludes the review and provides further suggestions.

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## 2.    LITERATURE REVIEW

Studies available in the state-of-the-art mention different ways in which image segmentation can be performed. Prior to disease diagnosis, authors have adopted various segmentation approaches to guide image classification models toward achieving the desired outcomes. They have not only implemented such solutions but have also emphasized the advantages and challenges encountered in this area.

Rich et al. (2023) performed a systematic review of the deep-learning models used to segment bone cancer. The solution included various preprocessing steps and was applied to multiple image modalities. Some of the most popular deep learning models were considered by Gupta and Mishra (2024) for the segmentation of polyp images. They compared the results obtained by the selected methods and discussed plans in this direction.

Du et al. (2020) provided a review on medical image segmentation but with a focus on U-Net architectures and ways to improve this kind of network. Khouy et al. (2023) proposed a faster and less complex image segmentation approach. It consists of a U-Net architecture that uses genetic algorithms for lung, cell nucleus and liver segmentation. Siddique et al. (2021) studied in depth the U-Net approach by observing its latest trends. They explained how some innovative tools can improve the U-Net performance if combined with the latter. An important insight provided by authors in the literature is sustainable healthcare. According to Liu et al. (2021) and Khouy et al. (2023), the use of AI to conduct medical image segmentation and disease classification is an approach that can be considered sustainable.

## 3.    METHODOLOGY

This comprehensive review complies with the guidelines established by PRISMA (Tricco et al., 2018). ACM Digital Library, IEEE Xplore, and PubMed are the databases selected by the authors to conduct the research. This protocol-driven research is reproducible, and Figure 1 shows the followed study selection procedure.
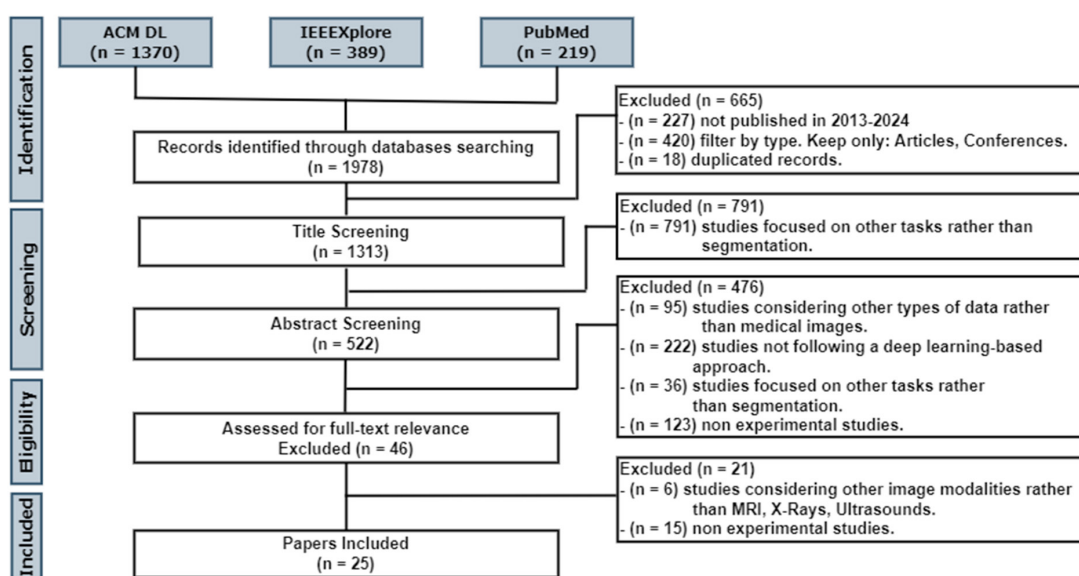


**Figure 1.** Study selection procedure
**Source:** Own research

## 3.1. Inclusion Criteria

The search string used in the selected databases combined the following terms: medical image, segmentation architecture, segmentation technique, MRI, magnetic resonance imaging, x-ray, ultrasound, US, deep learning, and disease.

We only assessed papers that met the following inclusion criteria:
- Studies published from 2013 to 2024;
- Journal articles and conference papers;
- Studies published in English only;
- Studies employing a deep learning methodology to address segmentation tasks.

## 3.2. Exclusion Criteria

After duplicate removal, some additional studies were excluded from the final assessment:
- Studies that do not apply a specific segmentation solution on certain medical image datasets;
- Studies considering image modalities beyond those mentioned in the search string;
- Studies do not follow a deep learning approach or focus on other tasks instead of segmentation.

## 4. DISCUSSION

Performing medical image segmentation manually can slow clinical workflows due to the effort and time required. Deep learning has been demonstrated to be a promising tool for increasing segmentation accuracy, speed, and improving problem generalizability (Rich et al., 2023). The state-of-art presents a wide range of architectures for medical image segmentation, but the authors are mainly focused on deep learning-based solutions. Table 1 summarizes all deep learning segmentation architectures adopted by relevant studies selected for further full-text analysis. It answers the first two aforementioned research questions by providing information regarding the segmented diseases and the metrics used to evaluate the performance of these architectures.

**Table 1.** Segmentation architectures utilized in relevant studies along with corresponding performance metrics

| Ref. | Segmentation Architecture | Disease | Performance Metrics |
|---|---|---|---|
| Benjelloun et al. (2019) | Deep neural network based on U-Net | Breast tumor | IoU = 0.7614 |
| Alsenan et al. (2021) | MobileNet-V3-U-Net | Neurological disorders | DSC = 0.78, MSD = 1.15, TPR = 72.89, TNR = 72.89, PPV = 90.27, JI = 0.68 |
| Karimzadeh et al. (2021) | Attention-based U-Net | Brain tumor | DSC = 0.79 |
| Zhu et al. (2018) | 3D CNN with densely-connected layers | Prostate | DSC = 0.861 |
| Ali et al. (2022) | Modified U-Net | Tuberculosis, Brain and Heart diseases | BraTs dataset DSC = 0.96, heart MRI DSC = 0.94, ZNSDB dataset DSC = 0.74 |
| Hasan et al. (2018) | NNRET U-Net based CNN | Brain tumor | DSC = 0.9104, IoU = 0.9075 |
| Sun et al. (2019) | AG-FCN + AG-U-Net | Brain diseases | ADNI dataset DSC = 0.8493 (AG-FCN), ADNI dataset DSC = 0.8864 (AG-UNet), LONI-LPBA40 dataset ASD = 1.099 (AG-FCN), LONI-LPBA40 dataset ASD = 1.070 (AG-UNet) |
| Guerroumi et al. (2019) | U-Net architecture + SE blocks | Adolescent idiopathic scoliosis | DSC (changes for different scoliosis severity scales) |

| Zhang et al. (2023) | SUNet++ | Liver nodules | Lowest DSC = 0.8987, highest DSC = 0.9446, PPV = 0.6067, Sensitivity = 0.8214, Hausdorff95 = 2.8541 |
|---|---|---|---|
| Kumar et al. (2018) | SegNet + U-Net | Epilepsy, Alzheimer's, multiple sclerosis, etc. | GM = 0.9033, WM = 0.8923, CSF = 0.6658, DSC = 0.8964 |
| Wang et al. (2019) | Multimodal 3D U-Net | Spine diseases | DSC = 0.89 |
| Bnouni et al. (2021) | A CNN with 3 preprocessing methods: histogram-based, smoothing and sharpening-based techniques | Cervical cancer | DSC = 0.768 |
| Qamar et al. (2018) | 3D hyper-dense CNN | Enhancing Tumor, Non-Enhancing Tumor, and Peritumoral Edema | Complete tumor DSC = 0.87, Enhancing tumor DSC = 0.81, Tumor core DSC = 0.84 |
| Joshi & Sharma (2021) | CNN autoencoder + GCN | Multiple sclerosis diseases | DSC = 0.855, Precision = 0.9, Loss = 0.145 |
| Almajalid et al. (2018) | U-Net | Breast cancer | DSC = 0.825, Similarity Rate = 0.698 |
| Zhang et al. (2020) | MUNet | Benign and malignant cervical lymph node | DSC = 0.938 |
| Estrada et al. (2021) | AttFastSurferCNN (With dense-connections and self-attention mechanism) | Diseases affecting the olfactory bulb | Dice Score (Dice) = 0.852, Volume Similarity (VS) = 0.910, Average Hausdorff Distance (AVD) = 0.215mm |
| Zhao et al. (2022) | nn-TransUNet | Cardiovascular diseases | DSC= 0.939, HD=2.8%, JSC= 88.6% |
| Shapey et al. (2021) | GammaPlan software based on U-Net | vestibular schwannoma | DSC = 0.9382 |
| Yang et al. (2019) | DPU-Net | cardiovascular diseases | Outperforms existing methods by 8–15% in terms of Hausdorff Distance (HD) |
| Huang et al. (2022) | Attention-VGG16-Unet | Median nerve injury | DSC = 0.904, Jaccard similarity = 0.826, Precision = 0.905, Recall = 0.909 |
| Wang et al. (2020) | Multi-scale ScSE-DenseNet | Pneumothorax | mean pixel-wise accuracy (MPA) = 0.93, DSC = 0.92 |
| Orlando et al. (2020) | 2D U-Net | Prostate cancer | DSC = 0.941, Recall = 0.960, Precision = 0.932, VPD = 5.78, MSD = 0.89, HD = 2.89 |
| Baniasadi et al. (2022) | nnU-Net | Brain diseases | DSC = 0.89, AHD = 0.13 |
| Coroamă et al. (2023) | 3D U-Net | Bladder cancer | DSC = 0.903 |

**Source:** Own research

## 4.1. RQ₁: From Current State-of-the-Art Research, Which Image Segmentation Architecture Shows Adaptability Across Various Diseases?

After observing the results reflected in Table 1, the segmentation architectures used in the relevant studies can be classified into three categories: U-Net-based, DenseNet-based, and Hybrid CNN. The three of them are convolutional neural networks, but they differ in terms of architecture characteristics, usage purposes, performance efficiency, computational efficiency, and used parameters. Figure 2 clearly shows that the first category is the most preferred since the majority of studies (76%) have used U-Net-based architectures for their segmentation task. This is a considerable percentage compared to studies employing DenseNet-based architectures (16%) and Hybrid CNN ones (8%).

If we take a closer look at studies adopting a U-Net-based architecture, we can see that they segment various types of diseases, affecting different organs of the body. Almost 37% are focused on diseases affecting the brain, such as brain tumors, Alzheimer's, multiple sclerosis, and neurological disorders. Diseases affecting the heart occupy 15%, while the remaining studies segment other specific diseases affecting other parts of the body. These results indicate that U-Net is generalizable and suitable for a broad range of diseases.
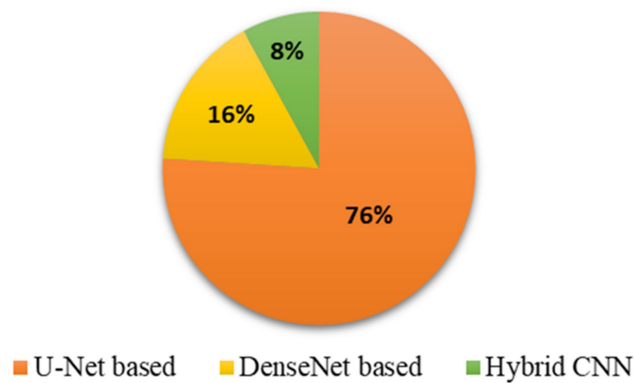
**Figure 2.** Distribution of segmentation architectures employed in the relevant studies

**Source:** Own research

## 4.2. RQ₂: Which Performance Evaluation Metrics Are Frequently Employed to Measure the Effectiveness of Medical Image Segmentation Architectures?

To assess the performance of the segmentation models, in almost all studies, authors compared their results against other similar solutions present in the state-of-art for the same targeted disease. The last column of our table presents different metrics that can be used to make such a comparison.

Dice similarity coefficient (DSC) is the most frequently used metric for performance efficiency measurement (89%), followed by the Jaccard index (JI) used in 26% of the cases. Both, DSC and JI are metrics that evaluate the similarity that exists between two samples. JI, also known as IoU (intersection over union) slightly differs from DSC in terms of formulation and interpretation (Liu et al., 2023). For the analyzed papers we are not able to compare the solutions based on these metrics since they have different targeted diseases and employed datasets. However, we can conclude that in any case, the values for DSC are above 0.75, and the values for JI are above 0.67. Furthermore, it is worth noting that all segmentation architectures not based on U-Net use the DSC metric, as well.

## 4.3. RQ₃: Does the Literature Provide Evidence on the Computational Efficiency of the Used Medical Image Segmentation Architectures?

When it comes to performance, considering how to increase or improve results while also minimizing or maintaining intact the computational costs, is crucial. An effective way to optimize costs is by reducing the computation time of the whole process. This can be achieved in various ways such as by reducing the number of parameters needed for the training process, or by incorporating graphic processing units to enable parallel computing (Benjelloun et al., 2019; Alsenan et al., 2021; Ali et al., 2022). Another approach is to reduce the size of the input image and downsampling it after, which leads to a lower number of activations needed (Hasan & Linte, 2018). Yang et al. (2019) downsized the input volumes, kept the ground truth masks intact, and upsampled the final predicted result.

The U-SegNet architecture works well on limited training data, meaning that its performance is not affected. It has fewer parameters than U-Net and captures multiscale information better than SegNet, so it combines the strengths of both architectures (Kumar et al., 2018). Authors Wang et al. (2019) used Tensorflow to implement their model, which compared to Theano, gives better results

in less data. This model can segment the input images and perform pre and post-processing in just half a second. According to Almajalid et al. (2018), U-Net outperforms other architectures in terms of efficiency because of its self-learning ability, and ability to adjust without any parameter tuning.

Besides time, costs can also be increased due to the large amount of resources needed for computation. Training is often performed on personal computers that have a limited batch and patch size. Given that, authors Zhao et al. (2022) proposed an nn-TransUNet which provides a customized training pipeline (with no need for manual tuning) that creates the right combination of batch and patch size by taking into consideration the type of dataset and computer resources. In Huang et al. (2022) is stated that attention-based architectures are great resource allocators since they can allocate more resources to harder tasks. Authors Orlando et al. (2020) acquired data using a step angle of 15°, resulting in less than 0.7 seconds of computation time. These should motivate other researchers to take into consideration when it is possible, different radial slice generation angles. The nnU-Net architecture in Baniasadi et al. (2022) was able to reduce a 43-minute computation time to just 1.3 minutes and the code is available on GitHub. Less complex networks having 1 to 4 layers show good results without needing to increase the learning time (Coroamă et al., 2023).

### 4.4. Limitations and Future Directions

Despite the success that deep learning architectures have in medical image segmentation, researchers face some limitations in this area. From the relevant papers, the authors noted that one of the main challenges is related to data availability and privacy, meaning that due to specific privacy regulations, patient data is not always easy to access (Alsenan et al., 2021; Zhang et al., 2023). In most cases, the limited range of data that can be gathered affects the generalizability of the model and causes overfitting (Huang et al., 2022).

Moreover, challenges related to the limited computational resources and computation time were often highlighted by researchers and not left behind. For instance, the architecture proposed by Sun et al. (2019) consists of two subnetworks which obviously might increase the model's computation time. It also ignores some implementation details related to the ROI segmentation that can affect somehow the accuracy of results. Additionally, models require a preprocessing or augmentation step, meaning that raw data cannot be served directly to the model, so an increase in computation time is inevitable (Coroamă et al., 2023).

Yang et al. (2019) decided to down-sample the size of the images used as input for the model. Despite this, the above limitations persist, and to address them, the selected studies mentioned some plans. Hasan and Linte (2018) aim to further evaluate the employed algorithm and consider adopting methods based on kernel optimization. Zhao et al. (2022) intend to simplify the model's architecture to reduce computational costs and balance the number of healthy and unhealthy MRI images.

Regarding performance improvement, Alsenan et al. (2021) and Guerroumi et al. (2019) propose using better solutions, such as U-Net++ or attention-based architectures. Meanwhile, Orlando et al. (2020) suggest to not underestimate an important parameter that affects performance, such as the step angle used to generate radial slices. Sun et al. (2019) will improve accuracy by using the current results as input for other post-processing methods. Wang et al. (2019) aim to increase the dataset size and to make improvements through augmentation and image patch generation using a responsive time window. Almajalid et al. (2018) plan to generalize findings by testing the solution on other medical image datasets and modalities.

## 5. CONCLUSION

Due to the sensitive and complex nature of medical images, processing such data requires efficient solutions in terms of time and resources. Deep learning has become very popular in the field of medical image processing thanks to its ability to handle challenging tasks and provide fast solutions. However, a wide range of deep learning algorithms are available in the state-of-art and choosing the most efficient one is difficult.

In this review paper authors have followed a systematic approach to select the literature and answer the research questions mentioned in the introduction section. After analyzing the relevant studies, it was found that the majority of studies (76%) used U-Net-based architectures to segment a wider range of diseases. Moreover, the dice similarity coefficient (DSC) and Jaccard index (JI) were the most suggested metrics to measure the performance of these architectures. Regarding computational efficiency, U-Net-based solutions demonstrated to be highly efficient in terms of time and resources, due to their self-learning ability and the ability to adjust without any parameter tuning.

Despite the advantages that deep learning architectures have, authors mentioned some limitations on their behalf. The latter are mostly present because of the limited data available, the numerous existing image modalities for diagnosing diseases, the limited computational resources and time, the complex nature of medical images, and privacy concerns related to them. As a future direction, studies suggest using other enhanced U-Net-based architectures such as U-Net++ or U-Net combined with attention mechanisms.

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# Analiza spoljnotrgovinske razmjene Bosne i Hercegovine sa preporukama za povećanje izvoznog potencijala
# Analysis of International Trade in Goods of Bosnia and Herzegovina with Recommendations for Increasing Export Potential

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**Sažetak:** *Uspješnost svake nacionalne ekonomije ogleda se kroz obim i kvalitet njene spoljnotrgovinske razmjene, a u vrijeme sve izraženije globalizacije svjetske ekonomije značaj spoljnotrgovinske razmjene postaje sve veći. Bosna i Hercegovina je mala, otvorena ekonomija, zavisna od promjena kako u okruženju, tako i na globalnom tržištu. Ono što karateriše spoljnotrgovinsko poslovanje Bosne i Hercegovine jeste otvoren ekonomski sistem, visoka uvozno - izvozna zavisnost (rast izvoza uslovljava rast uvoza) kao i deficit tekućeg računa platnog bilansa.*

*Predmet ovog rada je analiza spoljnotrgovinske razmjene Bosne i Hercegovine sa inostranstvom. Rad će kroz statističke pokazatelje prikazati strukturu robne razmjene Bosne i Hercegovine, kretanje izvoza i uvoza po godinama, kao i najznačajnije spoljnotrgovinske partnere Bosne i Hercegovine po zemljama i ekonomskim grupacijama zemalja. Takođe, rad će pokušati identifikovati izazove sa kojima se izvozno orijentisana preduzeća iz Bosne i Hercegovine suočavaju u međunarodnoj trgovini, ali i potrebne aktivnosti i mjere koje bi dovele do ekspanzije izvoza i poboljšanja izvoznih performansi.*

**Abstract:** *The success of each national economy is reflected in the volume and quality of its international trade. At the time of increasingly pronounced globalization of the world economy, the importance of international trade is becoming greater. Bosnia and Herzegovina is a small, open economy, dependent on changes in the region as well as on the global market. The characteristics of the international trade of Bosnia and Herzegovina are: an open economic system, high import-export dependence (growth in exports leads to growth in imports), as well as a current account deficit of the balance of payments.*

*The subject of this paper is the analysis of international trade in goods in Bosnia and Herzegovina. Through statistical indicators, the paper will show the structure of Bosnia and*

*Herzegovina's trade, the movement of exports and imports by year, as well as the most important international trade partners of Bosnia and Herzegovina, by country and economic groups of countries. Also, the paper will try to identify the challenges that export-oriented companies from Bosnia and Herzegovina face in international trade, as well as the necessary activities and measures that would lead to the expansion of exports and improvement of export performance.*

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## 1. UVOD

Globalizacija svjetske privrede nameće potrebu svim zemljama za intenzivnije i veće uključenje u svjetske ekonomske tokove, tj. u razmjenu roba, usluga, rada i kapitala. Prilagođavanje izazovima globalizacije važan je zadatak svih država kako bi se mogao ostvariti osnovni ekonomski cilj-rast životnog standarda građana. U takvim okolnostima, povećanje izvoza je jedan od najbitnijih uslova za povećanje privredne aktivnosti neke zemlje.

Male, otvorene privrede i te kako su podložne privrednim kretanjima i promjenama kako na globalnom nivou, tako i u bližem okruženju, što se posljedično odražava i na njihova privredna kretanja i spoljnotrgovinsku razmjenu. Takav je slučaj i sa Bosnom i Hercegovinom.

## 2. SPOLJNOTRGOVINSKA RAZMJENA BOSNE I HERCEGOVINE

Bosna i Hercegovina (BiH) je uvozno zavisna privreda, sa konstantnim deficitom u spoljnotrgovinskoj robnoj razmjeni. U tabeli 1. prikazana je robna razmjena Bosne i Hercegovine sa ostatkom svijeta za period od 2014. do 2023. godine, iz koje je vidljivo da tokom posmatranog perioda, izvoz i uvoz uglavnom bilježe rast.

**Tabela 1.** Ukupna robna razmjena Bosne i Hercegovine, 2014.-2023. godina (u 000 €)

| Godina | Izvoz | Uvoz | Obim robne razmjene | Bilans robne razmjene | Pokrivenost uvoza izvozom (%) |
|---|---|---|---|---|---|
| 2014. | 4.438.904 | 8.282.559 | 12.721.464 | -3.843.655 | 53,6 |
| 2015. | 4.595.141 | 8.104.929 | 12.700.070 | -3.509.788 | 56,7 |
| 2016. | 4.815.403 | 8.262.995 | 13.078.398 | -3.447.593 | 58,3 |
| 2017. | 5.652.528 | 9.298.171 | 14.950.699 | -3.645.644 | 60,8 |
| 2018. | 6.084.502 | 9.854.623 | 15.939.125 | -3.770.122 | 61,7 |
| 2019. | 5.876.055 | 9.969.468 | 15.845.523 | -4.093.413 | 58,9 |
| 2020. | 5.379.383 | 8.633.820 | 14.013.204 | -3.254.437 | 62,3 |
| 2021. | 7.297.939 | 11.042.320 | 18.340.259 | -3.744.380 | 66,1 |
| 2022. | 9.189.827 | 14.641.583 | 23.831.410 | -5.451.756 | 62,8 |
| 2023. | 8.538.433 | 14.197.331 | 22.735.764 | -5.658.898 | 60,1 |

**Izvor:** Agencija za statistiku Bosne i Hercegovine, 2024

U 2023. godini izvoz Bosne i Hercegovine iznosio je 8,53 milijardi evra i manji je za 7,1% u odnosu na 2022. godinu, dok je uvoz iznosio 14,19 milijardi evra što je za 3% manje nego u istom razdoblju prethodne godine. Pokrivenost uvoza izvozom tokom 2023. godine iznosila je 60,1% i takođe je manja u odnosu na 2022. godinu.

Posmatrajući prethodni desetogodišnji period (2014-2023) možemo uočiti da je izvoz BiH uglavnom imao trend rasta, s tim da je najveći izvoz ostvaren u 2022. godini (9,18 milijardi evra). Takođe, Bosna i Hercegovina bilježi i trend rasta uvoza, čija je vrijednost takođe bila najviša tokom 2022. godine. Bilans robne razmjene BiH sa svijetom je konstantno negativan, dok se prosječna stopa pokrivenosti izvoza uvozom u desetogodišnjem periodu kreće oko 60%.

Bosna i Hercegovina je u prethodnoj godini najviše izvozila na tržište Njemačke, Hrvatske, Srbije, Austrije i Italije. Izvoz u ove zemlje činio je oko 63% ukupnog izvoza Bosne i Hercegovine u 2023. godini. S druge strane, Bosna i Hercegovina je u toku prošle godine, najveći uvoz ostvarila iz Italije, Njemačke, Srbije, Kine i Hrvatske.

**Tabela 2.** Najznačajniji spoljnotrgovinski partneri Bosne i Hercegovine u 2023. godini

| Zemlja | Učešće u ukupnom izvozu BiH (%) | Zemlja | Učešće u ukupnom uvozu BiH (%) |
|---|---|---|---|
| Njemačka | 16,1 | Italija | 13,9 |
| Hrvatska | 15,3 | Njemačka | 12,0 |
| Srbija | 12,5 | Srbija | 10,2 |
| Austrija | 10,3 | Kina | 9,5 |
| Italija | 8,7 | Hrvatska | 7,5 |
| Slovenija | 8,1 | Turska | 5,5 |
| Crna Gora | 4,1 | Slovenija | 3,9 |
| Nizozemska | 2,5 | Austrija | 3,6 |
| Francuska | 2,0 | Poljska | 3,1 |
| Mađarska | 1,7 | SAD | 2,8 |
| Ostale zemlje | 18,7 | Ostale zemlje | 28,0 |

**Izvor:** Agencija za statistiku Bosne i Hercegovine, 2024

Zemlje Evropske unije (EU) tradicionalno predstavljaju najznačajnije spoljnotrgovinske partnere Bosne i Hercegovine. O tome govori i pokazatelj da se oko 73% od cjelokupnog izvoza BiH plasira na tržište EU. U 2023. godini, izvoz Bosne i Hercegovine u EU je iznosio 6,23 milijarde evra, tj. 7,9% manje nego u istom periodu 2022. godine, dok je uvoz iz EU iznosio 8,37 milijardi evra, što je za 0,5% više nego u istom periodu prethodne godine. Pokrivenost uvoza izvozom u spoljnotrgovinskoj razmjeni sa Evropskom unijom, 2023. godine, iznosila je 74,4%. EU zemlje sa kojima je Bosna i Hercegovina ostvarila suficit u robnoj razmjeni u 2023. godini su Austrija, Hrvatska, Slovenija, Litvanija, Luksemburg i Nizozemska.

Smanjenje obima razmjene BiH sa EU u prethodnoj godini, leži prije svega u smanjenoj privrednoj aktivnosti na nivou same Evropske Unije, koja je nastala uslijed pogoršanja međunarodnog okruženja, geopolitičkih tenzija, inflatornih kretanja, skupljih energenata. Sve ovo imalo je za posljedicu smanjenje potražnje te samim tim i smanjenje izvoza u Evropsku uniju, koja za Bosnu i Hercegovinu predstavlja ključnog spoljnotrgovinskog partnera.

Drugo najznačajnije tržište za Bosnu i Hercegovinu, nakon EU, predstavlja tržište zemalja CEFTA. Izvoz u zemlje CEFTA, u 2023. godini, iznosio je 1,59 milijardi evra, što je za 5,5% manje nego u istom razdoblju 2022. godine, dok je uvoz iznosio 1,65 milijardi evra, odnosno 7,9% manje nego u istom razdoblju prethodne godine. Pokrivenost izvoza uvozom iznosila je 96,3%.

Iako je Bosna i Hercegovina sa zemljama EFTA ostvarila suficit u razmjeni od 48,7 miliona evra, zemlje EFTA ne učestvuju značajno u BH izvozu i uvozu (BiH je u prošloj godini ostvarila svega 1% uvoza iz zemalja EFTA, odnosno izvoz BiH u ove zemlje činio je 2% ukupnog izvoza u 2023. godini) (Ministarstvo spoljne trgovine i ekonomskih odnosa Bosne i Hercegovine, 2024). Od zemalja EFTA, Bosna i Hercegovina je pozitivno trgovala sa Norveškom i Švajcarkom (pokrivenost uvoza izvozom u 2023. godini sa ovim zemljama iznosila je 132,3% i 152,1 % respektivno).

Najznačajnije grupe proizvoda, koje je Bosna i Hercegovina izvezla u 2023. godini su: električna energija; izolirana žica, kablovi i ostali izolirani električni provodnici; željezne ili čelične konstrukcije i dijelovi konstrukcija; sjedala i njihovi dijelovi; ostali namještaj i njegovi dijelovi; dijelovi i pribor motornih vozila iz tarifnih brojeva 8701 do 8705; drvo obrađeno po dužini, debljine veće od 6 mm; karbonati, peroksikarbonati, komercijalni amonijev karbonat koji sadrži amonijev karbamat; dijelovi obuće, izmjenjivi ulošci za obuću, umeci za pete i slični proizvodi, nazuvci; građevinski proizvodi od plastičnih masa, koji nisu pomenuti ili uključeni na drugom mjestu.

**Tabela 3.** Izvoz i uvoz Bosne i Hercegovine
prema ekonomskim grupacijama zemalja u 2023. godini (000 €)

| | Izvoz | Uvoz |
|---|---|---|
| **Razvijene zemlje** | **6.696.809** | **9.935.030** |
| Zemlje EU | 6.231.123 | 8.371.945 |
| Zemlje EFTA | 150.132 | 101.395 |
| Ostale razvijene zemlje | 315.554 | 1.461.690 |
| **Zemlje u razvoju** | **1.832.194** | **4.259.301** |
| Zemlje CEFTA | 1.595.619 | 1.656.678 |
| Ostale evropske zemlje u razvoju | 61.708 | 279.864 |
| Afričke zemlje u razvoju | 33.967 | 92.753 |
| Azijske zemlje u razvoju | 121.453 | 1.995.887 |
| Američke zemlje u razvoju | 19.447 | 234.014 |
| Okeanijske zemlje u razvoju | - | 105 |
| **Neraspoređeno** | **9.430** | **3.000** |
| **UKUPNO** | **8.538.433** | **14.197.331** |

**Izvor:** Agencija za statistiku Bosne i Hercegovine, 2024

S druge strane, grupe proizvoda koje je Bosna i Hercegovina najviše uvozila u toku 2023. godini bile su: naftna ulja i ulja dobivena od bitumenskih minerala, osim sirovih; putnički automobili i druga motorna vozila; lijekovi; kameni ugalj, briketi i slična čvrsta goriva od kamenog uglja; aluminij u sirovim oblicima; bakrena žica; goveđe meso, svježe ili rashlađeno; telefonski aparati; ostali aparati za slanje ili primanje glasa, slike ili drugih podataka; motorna vozila za prevoz robe; naftni plinovi i ostali plinoviti ugljikovodici. (Ministarstvo spoljne trgovine i ekonomskih odnosa Bosne i Hercegovine, 2024)

## 3. IZVOZNA KONKURENTNOST BOSNE I HERCEGOVINE

Iako je Bosna i Hercegovina ostvarila određene pomake po pitanju ukupne makroekonomske stabilnosti, poboljšanje industrijske i izvozne konkurentnosti ostaju ključni izazovi kako bi se omogućilo podizanje životnog standarda njenih građana.

Brojni su razlozi, koji su onemogućili da Bosna i Hercegovina u značajnijoj mjeri unaprijedi industrijsku bazu, poveća izvoznu ponudu na svjetskim tržištima i na taj način poveća ekonomski rast, odnosno poveća dohodak po glavi stanovnika. Naime, ratna stradanja koja su za posljedicu imala smanjen ljudski kapital, uništenje proizvodnih kapaciteta i infrastrukture, te gubitak izvoznih tržišta rezultirali su time da je Bosna i Hercegovina imala znatno nepovoljniju početnu poziciju u odnosu na konkurentske zemlje.

Pored ovih faktora značajno ograničenje predstavlja i neefikasan i još uvijek nezavršeni proces privatizacije, kao i sporost u provođenju ekonomskih reformi generalno. Posljedica svih ovih dešavanja je vrlo skromna i nedovoljno diverzifikovana industrijska baza u kojoj preovladavaju radno i resursno intenzivne industrijske grane sa niskom dodanom vrijednosti i samim tim veoma slabim doprinosom ekonomskom rastu.

Bosna i Hercegovina je u prethodnih nekoliko godina ostvarila rast industrijske proizvodnje. Međutim, to nije bilo dovoljno da se značajnije unaprijedi ukupna industrijska baza, te da se iskorištenost kapaciteta podigne na viši nivo. Zahvaljujući povećanju proizvodnje, Bosna i Hercegovina je uspjela djelimično poboljšati proizvodnu bazu, što potvrđuje povećanje udjela

prerađivačke industrije u strukturi BDP-a na 14,4% zaključno sa 2022. godinom. Ovaj podatak djeluje ohrabrujući, jer se sudeći prema njemu, Bosna i Hercegovina nalazi u rangu zemalja EU, međutim treba imati u vidu da se zemlje Evropske unije nalaze na znatno višem nivou ekonomskog razvoja, odnosno da prerađivačka industrija u strukturi ekonomija ovih zemalja ima relativno manji značaj u odnosu na ostale segmente kao što je npr. sektor usluga. Prema udjelu prerađivačke industrije, Bosna i Hercegovina se nalazi nešto iznad regionalnog prosjeka zemalja Zapadnog Balkana (ZB), ali ispod prosjeka zemalja Centralne i Istočne Evrope (CIE).
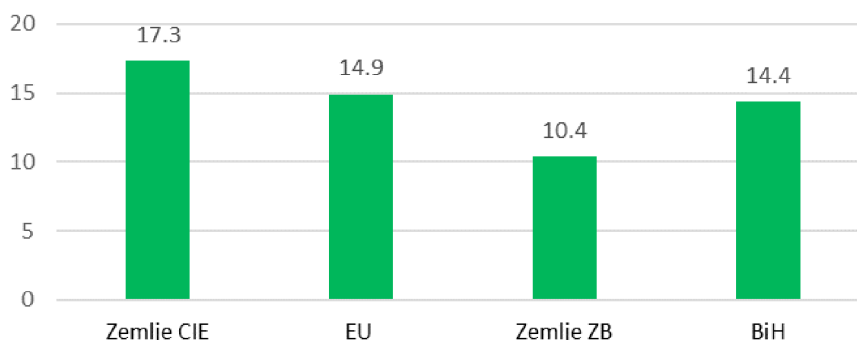


**Grafikon 1.** Udio prerađivačke industrije u BDP-u, 2022. godina
**Izvor:** Svjetska banka, 2024

Širenje globalne pandemije virusa Covid 19 u 2020. godini dovelo je do prekida u globalnim lancima snadbijevanja, odnosno pada spoljnotrgovinske razmjene u svijetu. Uprkos nepovoljnom međunarodnom ekonomskom okruženju, Bosna i Hercegovina je, u prethodnom periodu, ostvarivala i solidan rast izvoza od preko 5% na godišnjem niovu. Međutim, iako je BiH povećala udio izvoza u BDP-u, tokom prethodnog perioda, treba napomenuti da je rast izvoza BiH istovremeno pratio i rast uvoza.
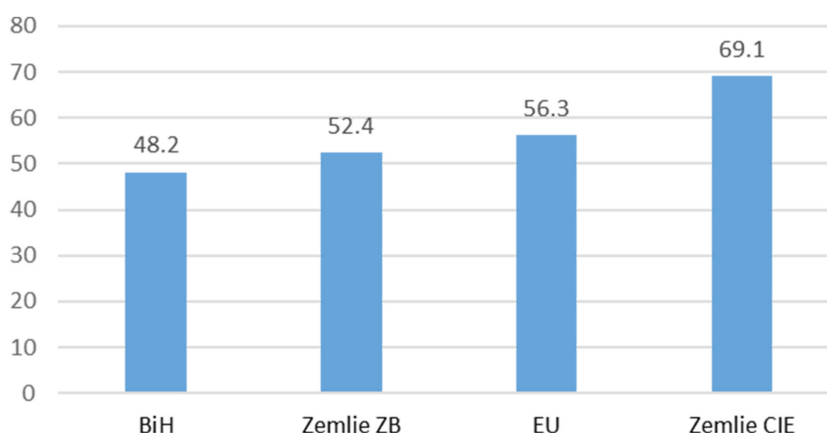


**Grafikon 2.** Učešće izvoza u BDP-u, 2022. godina (%)
**Izvor:** Svjetska banka, 2024

Takođe, uprkos relativno solidnim izvoznim rezultatima Bosna i Hercegovina nije napravila značajniji iskorak ni kada je u pitanju doprinos rasta izvoza ekonomskom rastu, odnosno povećanju dohotka po glavi stanovnika. U prilog tome govori i podatak da je izvoz po glavi stanovnika, u Bosni i Hercegovini oko 2.200$, Srbiji 3.000$ i Sjevemoj Makedoniji 4.000$, Hrvatskoj 4.500$, dok u regionu Centralne i Istočne Evrope iznosi skoro 12.700 $, dok je ovaj iznos u Njemačkoj preko 17.500 $ (Svjetska banka, 2024). Zemlje poput Češke, Slovačke, Slovenije i Mađarske imaju dvostruko viši nivo izvoza u BDP-u, koji je kvalitativno znatno naprredniji

u odnosu na zemlje Zapadnog Balkana i Bosnu i Hercegovinu. Ovi statistički parametri o (ne) konkurentnosti industrije i izvoza u Bosni i Hercegovini na indirektan način nude odgovor na nizak nivo životnog standarda BH građana.

Uvidom u strukturu izvoza može se zaključiti da se ista nije značajnije mijenjala kako u pogledu tehnološkog intenziteta proizvoda, tako ni u smislu geografske disperzije tržišta za BH izvozne proizvode. Tako još uvijek dominantnu ulogu u strukturi izvoza u Bosni i Hercegovini imaju intermedijami proizvodi (42% i proizvodi za široku potrošnju 36% (trajni 12%, netrajni 24%) koji su uglavnom resursno i radno intenzivni, te sirovine sa učešćem od oko 8%. S druge strane, kapitalni proizvodi koji zahtijevaju upotrebu naprednijih tehnologija i znanja, a samim time imaju i veću dodanu vrijednost uglavnom stagniraju sa učešćem u ukupnom BH izvozu od oko 14% (Direkcija za ekonomsko planiranje BiH, 2024).

Kvantitativno skomnu BH prerađivačku industriju u kvalitativnom smislu karakteriše i uska proizvodna baza uglavnom resursno i radno intenzivnih industrijskih grana što za posljedicu ima proizvodnju proizvoda niskog tehnološkog intenziteta skromne dodane vrijednosti.

Udio učešća visoko tehnoloških proizvoda u strukturi izvoza Bosne i Hercegovine u 2021. godini iznosio je 5,32%, dok je poređenja radi, taj udio u EU iznosio 17,6% (Svjetska banka, 2024).

Vjerovatno najbolji pokazatelj koji objedinjuje industrijsku i izvoznu konkurentnosti je Indeks industrijske konkurentnosti[5] (Competetivness Industrial Performance lndex-CIP), koji nudi komparativni prikaz po zemljama i redovno se objavljuje od strane Organizacije Ujedinjenih nacija za industrijski razvoj (UN Industrial Development Organization-UNIDO). Prema posljednjim raspoloživim podacima za 2021. godinu, Bosna i Hercegovina na svjetskoj ljestvici industrijske konkurentnosti zauzima 77. poziciju po pitanju industrijske konkurentnosti. Ako se indeks industrijske konkurentnosti posmatra po zemljama, vidljivo je da Njemačka već više od deset godina zauzima prvu poziciju, kao i relativno dobra pozicioniranost zemalja Centralne i Istočne Evrope između, dok su zemlje Zapadnog Balkana relativno lošije pozicionirane i nisu ostvarile značajniji napredak u posljednjih nekoliko godina. Najbolje rangirana zemlja u regionu je Hrvatska koja je uprkos slabljenju industrijske konkurentnosti, u 2021. godini zauzela 52. poziciju. Srbija se nalazi se na 60. poziciji. Sjeverna Makedonija sa 73. mjestom je nešto bolje pozicionirana u odnosu na BiH, dok su najlošije rangirana Albanija na 112. i Cma Gora na 128. mjestu (UNIDO, 2024). Ako se kompozitni indikator CIP posmatra detaljnije po komponentama vidljivo je da su ključni razlozi slabe rangiranosti BiH nerazvijenost industrijske baze odnosno nisko učešće prerađivačke industrije u BDP-u od oko 13%, te dodana vrijednost u prerađivačkoj industriji po glavi stanovnika od oko 1000 $. Pored ove oblasti drugi indikator po kom Bosna i Hercegovina zaostaje za zemljama regiona je udio srednje i visokotehnoloških proizvoda u izvozu od oko 25%, dok regionalni prosjek iznosi 35%.

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[5] CIP indeks predstavlja geometrijski prosjek 8 indikatora prerađivačke industrije i izvoza: lndikator 1-*MVapc*: *Manufacturing Value Added per capita*- dodana vrijednost po glavi stanovnika u prerađivačkoj industriji; lndikator 2-*MXpc*: *Manufactured exports pet capita*: izvoz po glavi stanovnika u prerađivačkoj industriji; Indikator 3: *MHV Ash*: Mediun and Hightech *Manufacturing Value Added* share ih total GDP- udio srednje i visoko tehnoloških proizvoda u prerađivačkoj industriji; lndikator 4: *MW Ash: Manufacturing Value Added share in total GDP*- udio prerađivačke industrije u BDP-u; Indikator 5: *MHXsh*. Medium and High tech *Manufactured Exports share in total manufactured exports* - udio visoko i srednje tehnoloških proizvoda u izvozu; Indikator 7: *ImWMVA: Impact of a country on World Manufacturing Value Added* -uticaj zemlje na svjetsku prerađivačku industriju i Indikator 8*: ImWMT:Impact of a country on Worlds Manufactures Trade*-uticaj zemlje na spoljnotrgovinsku raznjenu u svijetu.

**Tabela 4.** regled industrijske konkurentnosti po zemljama

| Zemlja | Pozicija u 2010. godini | Pozicija u 2016. godini | Pozicija u 2021. godini | Vrijednost CIP indeksa u 2021. godini |
|---|---|---|---|---|
| Njemačka | 1 | 1 | 1 | 0,404 |
| Italija | 9 | 10 | 11 | 0.221 |
| Austrija | 16 | 15 | 14 | 0.189 |
| Češka | 19 | 17 | 16 | 0.177 |
| Poljska | 26 | 23 | 23 | 0.141 |
| Mađarska | 27 | 26 | 26 | 0.123 |
| Slovačka | 29 | 27 | 28 | 0.121 |
| Slovenija | 33 | 31 | 32 | 0.104 |
| Rumunija | 36 | 33 | 36 | 0.090 |
| Hrvatska | 58 | 55 | 52 | 0.048 |
| Bugarska | 60 | 56 | 54 | 0.047 |
| Srbija | 71 | 60 | 60 | 0.041 |
| Sjeverna Makedonija | 91 | 79 | 73 | 0.026 |
| Bosna i Hercegovina | 89 | 83 | 77 | 0.025 |
| Albanija | 116 | 113 | 112 | 0.009 |
| Crna Gora | 129 | 129 | 128 | 0.005 |

**Izvor:** UNIDO, 2024

## 4.    PREPORUKE ZA POVEĆANJE IZVOZNOG POTENCIJALA BOSNE I HERCEGOVINE

Uloga države danas je da stvori povoljan poslovni ambijent u kome će preduzeća steći određeni nivo konkurentnosti, da bi mogla da prate konkurentske uslove poslovanja i da se suočavaju sa stranim konkurentima. Izvozna konkurentnost treba da se zasniva na porastu produktivnosti, kvalitetnijim proizvodima, novim i savremenim tehnologijama i posebno na kontinuiranim inovacijama.

Da bi se postigao određeni nivo konkurentnosti, BH preduzeća moraju ovladati brojnim znanjima, kako strateškim, tako i marketinškim, organizacionim, finansijskim i tehničkim znanjima, koja će im biti neophodna za konkurentsku borbu na globalnom tržištu.

Stepen uključenosti neke zemlje u međunarodno tržište može se posmatrati i analizirati preko više kompleksnih parametara, ali je svakako najindikativniji pokazatelj nivo bruto domaćeg proizvoda koji se ostvaruje u međunarodnoj razmjeni, odnosno relativan odnos ostvarenog izvoza i bilansa razmjene prema bruto domaćem proizvodu.

Analizirajući izvoz Bosne i Hercegovine po tome da li je on konkurentan kvalitetom i cijenom, može se zaključiti da je ostvarena cjenovna konkurentnost samo u sektorima koji obuhvataju primarne sirovine i poluproizvode nižeg stepena finalizacije, a veoma malo ili nikako u sofisticiranim i proizvodima viših tehnologija koji daju veću dodatu vrijednost. Konkurentnost na bazi kvaliteta i prepoznatljive robne marke je zanemarljiva. Najveći dio BH izvoznog asortimana je cjenovno i kvalitetom nedovoljno konkurentan na međunarodnom tržištu, što govori o tome da u sektoru izvoza postoje strukturni problemi ili pak određene izvozne barijere, ali i da su prisutni visoki proizvodni troškovi.

Uočljivo je da BH preduzeća ne pridaju gotovo nikakvu ili veoma malu pažnju istraživanju dostignutog nivoa svoje konkurentnosti niti značajnije rade na njenom unapređenju. Stručna usavršavanja radnika su nedovoljna, a inovacije su zanemarljive, imajući u vidu ograničena i mala

finansijska sredstva koja se izdvajaju u ove svrhe. Preduzeća se takođe nedovoljno međusobno povezuju u izvozne klastere kako bi poboljšali svoj nastup na inostranim tržištima i iskoristili sve prednosti koje ovakva umrežavanja nude. Pasivan pristup i uvriježena očekivanja da će država uraditi nešto po pitanju poboljšanja konkurentnosti zasigurno neće doprinijeti poboljšanju izvoznih performansi.

S druge strane, jasno je da ni sama preduzeća nisu isključivi krivci za nisko stanje konkurentnosti. Obrazovni sistem je takođe, jedan od uzroka niske konkurentnosti domaće privrede, jer nastavni programi i smjerovi školuju neadekvatne profile koji ne odgovaraju potrebama privrede. Takođe, postoji i hroničan odliv kompetentne domaće radne snage u inostranstvo, što sa svoje strane koči dalji napredak i rast preduzeća.

Ovdje posebno dolazi do izražaja vidljivost međusobne uslovljenosti i povezanosti ekonomskih, socijalnih, obrazovnih i dugih elemenata privrednog sistema uz naglasak na to da se oni se moraju paralelno, sistemski graditi i unapređivati.

Neke aktivnosti na poboljšanju konkurentnosti izvozne privrede mogu se uraditi i kroz zajedničke i sinhronizovane akcije privrede i države. Jedna od njih jeste i standardizacija, odnosno uvođenje međunarodnih standarda i alata za unapređenje kvaliteta u pojedinim oblastima poslovanja, što se danas nameće i kao imperativ za nastup na stranim tržištima, posebno na zahtjevnom tržištu EU.

Takođe, državne institucije sa svoje strane mogu i moraju da pomažu svojim preduzećima u smislu stvaranja pretpostavki za postizanje međunarodne konkurentnosti, kao i obezbjeđenja jednakih uslova za sva preduzeća prilikom izlaska i nastupa na inostranom tržištu.

Ovo se posebno odnosi na uočene barijere sa kojima se preduzeća susreću prilikom izvoza. Barijere se najčešće odnose na:
- barijere u vidu pribavljanja dokumentacije pri izvozu/uvozu;
- probleme na graničnim prelazima (nepriznavanje određene dokumentacije-sanitarni, fitosanitarni, veterinarski certifikati, dokazivanje porijekla sirovina, provjere kvaliteta i prekomjerno i nepotrebno uzimanje uzoraka i sl.);
- ograničavanje izvoza/uvoza na samo određene granične prelaze;
- produžavanje određenih privremenih zabrana i na period nakon prestanka razloga za zabranu (npr. produženje zabrane izvoza/uvoza stoke zbog pojave bolesti i nakon što epidemija prestane);
- nedostatak međudržavnih sporazuma o saradnji koji bi u mnogome olakšali poslovanje;
- razna odugovlačenja i procedure, itd.

Sve ove barijere stvaraju dodatne troškove domaćim preduzećima i time umanjuju njihovu konkurentnost za nastup na inostranom tržištu. Inicijativa za rješavanje ovih problema treba da stoji na državnim organima i institucijama.

U cilju povećanja izvozne konkurentnosti Bosna i Hercegovina mora iskoristiti prilike koje joj stoje na raspolaganju, kao što su: blizina tržišta Evropske unije, mogućnosti koje pruža CEFTA sporazum, usmjerenost na tržišta zemalja sa kojima ima tradicionalnu i kulturnu povezanost, efikasnije korišćenje prirodnih resursa uz proizvodnju proizvoda sa višom dodanom vrijednošću, saradnja sa institucijama iz okruženja za podršku izvozu i sl.

Država sa svoje strane u narednom periodu mora da provodi planski osmišljene strateške aktivnosti koje treba da dovedu do povećanja broja izvoznika i vrijednosti izvoza. Da bi se to postiglo, potrebno je, između ostalog, uspostaviti efikasan regulatorni i institucionalni okvir za podsticanje izvoza, unaprijediti stručne, obrazovne i naučno-istraživačke kapacitete, kao i povećati broj domaćih poslovnih mreža da bi se stvorila što konkurentnija domaća ponuda. Potrebno je da Bosna i Hercegovina uloži dodatne napore kako bi unaprijedila svoju agregatnu ponudu, što bi omogućilo snažniji ekonomski rast baziran na neto izvozu, koji bi u konačnici doveo do povećanja životnog standarda građana.

## 5. ZAKLJUČAK

Bez obzira na određena pozitivna kretanja tokom prethodnih godina, u spoljnotrgovinskoj razmjeni Bosne i Hercegovine i dalje je prisutan značajan deficit, što predstavlja jedan od osnovnih problema njene privrede. Pored toga, izvoz u Bosni i Hercegovini kvalitativno karakteriše proizvodnja proizvoda niskog tehnološkog intenziteta skromne dodane vrijednosti koja se plasira na prilično mali broj tržišta.

Neophodno je intenzivirati proces reindustrijalizacije i podići udio prerađivačke industrije u BDP-u, koja se smatra nosiocem izvoza i generatorom zaposlenosti. Činjenica je da Bosna i Hercegovina mora razvijati tehnološki nove proizvode sa većom dodatom vrijednošću. Samo tako može biti konkuretnija na izvoznom tržištu, što će posljedično uticati i na veće prihode preduzeća, rast plata i standard građana.

Da bi se postigao određeni nivo izvozne konkurentnosti, BH kompanije moraju ovladati adekvatnim znanjima, neophodnim za konkurentsku borbu na globalnom tržištu. Država, sa svoje strane mora kontinuirano da radi na unapređenju konkurentnosti i stvaranju povoljnog poslovnog okruženja. Takođe, kroz mrežu svojih vanjskih institucija kao što su ambasade i diplomatska predstavništva, država bi trebala više da se angažuje na otvaranju prostora za izvozno orijentisane firme i plasman njihovih proizvoda van granica Bosne i Hercegovine.

Stoga dalji akcenat treba da bude na stvaranju i provođenju sistemskog, umreženog i sinhronizovanog pristupa i djelovanja državnih institucija i BH kompanija, kako bi njihov izlazak i nastup na međunarodnom tržištu bio što uspješniji.

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# Strategija zajedničkog ulaganja na primeru srpskih preduzeća i njihovih inostranih partnera
# Joint Venture Strategy on the Example of Serbian Companies and Their Foreign Partners

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**Apstrakt:** *Zajedničko ulaganje (joint venture) predstavlja oblik poslovne saradnje u kojem dva ili više preduzeća udružuju resurse i kapital kako bi postigli specifične ciljeve, kao što su ulazak na nova tržišta, razvoj novih proizvoda ili usluga, kao i postizanje konkurentske prednosti. Ovaj oblik saradnje omogućava efikasniju upotrebu resursa, smanjenje rizika, širenje poslovnih aktivnosti, ali donosi i određene izazove i rizike. Takođe, zajednička ulaganja omogućavaju preduzećima da iskoriste prednosti ekonomije obima, smanje troškove i unaprede poslovnu efikasnost. U radu će biti analizirane prednosti zajedničkih ulaganja kroz odabrane primere iz prakse.*

**Abstract:** *A joint venture is a form of business cooperation in which two or more companies combine resources and capital to achieve specific goals, such as entering new markets, developing new products or services, and achieving a competitive advantage. This form of cooperation enables more efficient use of resources, risk reduction, and expansion of business activities, but also brings certain challenges and risks. Also, joint ventures allow companies to take advantage of economies of scale, reduce costs and improve business efficiency. The paper will analyze the advantages of joint ventures through selected examples from practice.*

## 1. UVOD

Zajedničko ulaganje predstavlja saradnju između najmanje dva preduzeća, domaća i/ili strana, koja uključuju zajedničko ulaganje u specifične projekte, osnivanje zajedničkog preduzeća ili proizvodnju i tržišni nastup. Ovaj metod omogućava preduzećima da iskoriste svoje prednosti na specifičnim tržištima, ulaze u nove regione, koriste prirodne resurse i radnu snagu zemlje domaćina, a zemlja domaćin koristi sredstva za razvoj, proširuje tržišno prisustvo i stiče znanje (know-how).

Mnogi istraživači su proučavali temu zajedničkog ulaganja, ističući različite aspekte ove strategije kao što su prednosti u pogledu deljenja resursa i rizika (Milošević et al., 2018), kao i izazove koji se javljaju zbog kulturnih razlika (Bassey, 2024) i koordinacije među partnerima. Istraživanja su pokazala kako uspešna saradnja između preduzeća može doneti ekonomske prednosti (Ali et al., 2021; Duanmu & Lawton, 2021; Konara & Mohr, 2023), ali da je ključ za dugoročni uspeh efikasno upravljanje zajedničkim resursima (Jin & Wang, 2021) i razumevanje tržišnih dinamika, kao i strategije koje omogućavaju obostrani profit (Harrigan, 1988).

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Strategija zajedničkog ulaganja analizirana na primeru srpskih preduzeća i njihovih stranih partnera pokazuje kako ova vrsta saradnje omogućava preduzećima da udruže resurse, smanje rizike i povećaju tržišno učešće. U kontekstu Srbije, preduzeća koriste ovu strategiju kako bi se povezala sa stranim preduzećima, razvila nove proizvode ili usluge i pristupila stranim tržištima. Ovaj pristup pomaže u ostvarivanju prednosti i omogućava efikasnije poslovanje kroz deljenje troškova, znanja i iskustava.

## 2. PREGLED LITERATURE

Zajedničko ulaganje je poslovna saradnja između dva ili više preduzeća koja udružuju svoje resurse i kapital kako bi postigla specifičan cilj, kao što je razvoj novog proizvoda, usluge ili ulazak na nova tržišta. Ovaj aranžman nosi određene rizike i potencijalne gubitke koji se ravnomerno dele među partnerima. Zajednička ulaganja mogu obuhvatiti i domaća i strana preduzeća, a svi učesnici rade zajedno kako bi ostvarili zajedničke ciljeve i ostvarili profit (Azis et al., 2023; Beamish, 2008; Shishido et al., 2015).

Zajednička ulaganja omogućavaju bolje iskorišćavanje resursa partnera, poput kombinacije efikasnih proizvodnih procesa jednog preduzeća i snažnih distribucionih kanala drugog. Ekonomija obima pruža troškovne prednosti kroz povećanje obima proizvodnje, smanjenje troškova i postizanje veće efikasnosti. Ove uštede mogu biti interne, zasnovane na odlukama menadžmenta (poput marketinga ili IT-a), ili eksterne, povezane sa spoljnim faktorima (Ćuić & Berber, 2009). Ekonomija obima je ključna za poslovanje u svim industrijama, jer omogućava uštede troškova i sticanje konkurentske prednosti. Veća preduzeća postižu ovu prednost smanjenjem prosečnih troškova po jedinici proizvoda kako se obim proizvodnje povećava, čime ostvaruju operativnu efikasnost i veću tržišnu sposobnost.

Dva preduzeća koja ulaze u zajedničko ulaganje često donose različita znanja, veštine ili stručnost, što omogućava obostranu korist kroz poslovnu saradnju. Strategija zajedničkog ulaganja se često koristi za ulazak na strana tržišta kroz partnerstva sa lokalnim preduzećima. Na primer, jedno preduzeće može proširiti svoju distributivnu mrežu tako što će sarađivati sa lokalnim preduzećem. Lokacija distributivne mreže i kvalitet infrastrukture su ključni faktori, dok funkcije poput skladištenja i transporta prilagođavaju poslovanje specifičnim potrebama preduzeća i njenim kupcima (Čerović, 2002).

Pre ulaska u zajedničko ulaganje, važno je istaći sopstveno iskustvo i rezultate kako bi se privukli odgovarajući partneri. Ključ uspešne saradnje je pronalazak partnera sa sličnim vrednostima i istorijom uspeha, što se postiže umrežavanjem. Efikasna komunikacija i međusobno poverenje među partnerima garantuju brzo rešavanje problema i stabilnu saradnju. Otvorena i iskrena razmena informacija ključna je za dugoročan uspeh zajedničkog ulaganja.

Glavne prednosti zajedničkog ulaganja su (Berardo, 2010; Guofeng et al., 2020; Milošević et al., 2018; Pape & Schmidt-Tank, 2004; Tetteh et al., 2022):
- efikasnije korišćenje dostupnih resursa,
- pristup novim tržištima i proširenje distributivne mreže,
- deljenje troškova i rizika,
- sticanje znanja i stručnosti,
- mogućnost prodaje proizvoda na novim tržištima,
- korišćenje resursa partnera za pružanje usluga,

- unapređenje istraživanja i razvoja,
- brži i efikasniji ulazak na strano tržište u odnosu na osnivanje filijale,
- privlačenje stranih investicija.

Na osnovu navedenih prednosti zajedničkih ulaganja, postavljaju se dve hipoteze rada:

**Hipoteza H1:** Zajednička ulaganja između dva preduzeća mogu unaprediti ključne performanse poslovanja.

**Hipoteza H2:** Ponuda sa kojom učesnici zajedničkog ulaganja nastupaju na tržištu mora biti jedinstvena i atraktivna.

## 3. METODOLOGIJA ISTRAŽIVANJA

Rad koristi metodologiju studije slučaja koja uključuje SWOT analizu i finansijsku analizu za ocenu strategije zajedničkih ulaganja turističkih agencija Olympic travel i Club Paradiso.

Club Paradiso je turistička agencija sa dugogodišnjim iskustvom. Od osnivanja njihovo jedino ciljno tržište je Grčka, gde su istaknuti kao jedna od boljih turističkih agencija. Preduzeće upošljava trenutno 6 zaposlenih sa znanjem iz iste delatnosti. Od početka osnivanja u cilju obezbeđenja rasta i razvoja, osnovali su još jedno preduzeće koje se zove Club Paradiso Holiday. Oba preduzeća se nalaze u Beogradu, s tim što nisu konkurentne jedna drugoj, već se dopunjuju. Club Paradiso je orijentisan ka inostranom turizmu, a Holiday ka domaćem turizmu. Agencija je fokusirana na aranžmane za porodice. U radu će se analizirati poslovanje preduzeća Club Paradiso zbog odluke da primeni strategiju zajedničkog ulaganja sa grčkim turoperaterom Filos u 2023. godini.

Olympic travel je turistička agencija sa dugogodišnjim iskustvom. Nudi aranžmane u zemljama poput Egipta, Makedonije, Portugalije, sa posebnim fokusom na Crnu Goru gde su istaknuti kao jedna od najboljih turističkih agencija. Preduzeće trenutno ima 10 zaposlenih sa znanjem iz iste branše. Od početka osnivanja, u cilju obezbeđenja rasta i razvoja, osnovali su dva ogranka. Jedan se nalazi u Beogradu, a drugi u Novom Sadu. Agenija je fokusirana na tržišta sa visokim životnim standardom. Kako će pokazati SWOT analiza i finansijska analiza, preduzeće Olympic travel beleži približno iste poslovne rezultate iz godine u godinu. Njihova želja je poboljšanje celokupnog poslovanja.

## 4. REZULTATI I DISKUSIJA

### 4.1. Club Paradiso

U Tabeli 1, prikazana je SWOT analiza agencije Club Paradiso.

Analizom putem SWOT metode utvrđuje se položaj turističke agencije na tržištu u odnosu na konkurenciju. Nakon što su prepoznate prednosti i mogućnosti preduzeća, kao i slabosti i potencijalne pretnje, agencija je usmerila svoje strateško planiranje na pronalaženje poslovnog partnera koji bi pomogao u prevazilaženju uočenih nedostataka i unapređenju parametara poslovanja.

Krajem 2022. godine, Club Paradiso je uspostavio partnerstvo sa grčkim turoperatorom Filos kroz ugovor o zajedničkom ulaganju. Prema sporazumu, Filos je bio zadužen za kreiranje i

proširenje ponude turističkih aranžmana, uključujući aktivnosti poput džip-safarija na Kasandri, Tasosu i Sitoniji, ronjenja na Tasosu i Halkidikiju, krstarenja sa posetom Plavoj laguni, obilazaka akvaparkova na Halkidikiju, ekskurzija na Atos, posete Olimpu uz priče o mitovima i istoriji ove planine, kao i šoping ture u Solunu. Club Paradiso je preuzeo odgovornost za promociju ovih aranžmana i privlačenje turista iz zemlje i regiona.

Sporazum je zaključen na period od jedne godine, uz mogućnost produženja u zavisnosti od postignutih rezultata zajedničkog poslovanja. Na kraju 2023. godine, nakon analize efekata ovog partnerstva, utvrđeno je da je broj putnika u 2023. godini porastao za približno 60.000 u odnosu na 2022. godinu, pri čemu je najveći broj putnika bio iz Bosne i Hercegovine.

**Tabela 1.** SWOT analiza agencije Club Paradiso

| Snage (S) | Mogućnosti (O) |
|---|---|
| + Korišćenje propagandnih sredstava i medija za komunikaciju sa poslovnim partnerima i kupcima.<br>+ Kvalitetan i moderan veb sajt.<br>+ Razvijena informaciona infrastruktura. | + Nove tehnologije i promena navika potrošača.<br>+ Konkurencija koja se protivi modernizaciji poslovanja.<br>+ Usluge iznajmljivanja vozila putem ovlašćenih preduzeća ili sopstvenih operacija.<br>+ Korišćenje specijalizovanih portala za online prodaju. |
| **Slabosti (W)** | **Opasnosti (T)** |
| − Nedostatak kadrova tokom vrhunca sezone odmora.<br>− Ograničena ponuda egzotičnih aranžmana.<br>− Česta otkazivanja aranžmana.<br>− Česte promene cena aranžmana. | − Novi zakoni i regulative, kao što su visoke premije putnog osiguranja.<br>− Kontinuirano praćenje novih tehnologija i ponašanja potrošača.<br>− Socijalni nemiri i globalne krize. |

**Izvor:** Autori

Po završetku poslovne 2023. godine, sastavljeni su finansijski izveštaji, koji su poslužili kao osnova za sprovođenje finansijske analize, čime su jasno identifikovani rezultati i učinci zajedničkog ulaganja.

**Tabela 2.** Finansijska analiza agencije Club Paradiso za 2022. i 2023. godinu

| Godina | 2022 | 2023 |
|---|---|---|
| **Racio likvidnosti** | 1,23 | 2,65 |
| **Racio solventnosti** | 1,27 | 2,46 |
| **Roa** | 0,86% | 37,64% |
| **Stopa bruto dobitka** | 1,70% | 25,54% |
| **Stopa poslovnog dobitka** | 24,79% | 26,31% |
| **Stopa neto dobitka** | 1,04% | 23,89% |

**Izvor:** Autori

Finansijska analiza ukazuje na izuzetno poboljšanje svih ključnih performansi agencije u 2023. godini u poređenju sa 2022. godinom. Ovi rezultati sugerišu da je zajedničko ulaganje sa grčkim turoperatorom Filos bilo izuzetno uspešno, omogućivši agenciji Club Paradiso da poveća efikasnost, likvidnost, i profitabilnost, čime je potvrđena prva hipoteza rada: Zajednička ulaganja između dva preduzeća mogu unaprediti ključne performance poslovanja.

### 4.2. Olympic travel

U Tabeli 3 prikazana je SWOT analiza agencije Olympic travel.

**Tabela 3.** Swot analiza agencije Olympic travel

| Snage (S) | | Mogućnosti (O) | |
|---|---|---|---|
| + | Zaposleni imaju snažne prodajne veštine i sposobnost brzog pronalaženja aranžmana. | + | Pojava novih tehnologija i promena u navikama potrošača. |
| + | Imaju iskustvo u radu sa ljudima i upravljanju računarima. | + | Konkurenti koji se protive modernizaciji predstavljaju prilike za preuzimanje tržišnog udela. |
| + | Poseduju razvijenu bazu stalnih putnika koji se vraćaju i dovode nove korisnike. | + | Uz pomoć Interneta i tehnološkog napretka, moguće je dopreti do klijenata u inostranstvu koji žele da rezervišu putovanje u Srbiji. |
| + | Veb sajt je visokog kvaliteta i dobro pozicioniran. | + | Potencijal za diversifikaciju poslovanja. |
| + | Postoji razvijena informaciona infrastruktura i moderno opremljen, lako dostupan poslovni prostor. | | |
| **Slabosti (W)** | | **Opasnosti (T)** | |
| − | Nedostatak kadrova tokom sezona odmora. | − | Novi zakoni i visoke premije putnog osiguranja. |
| − | Ograničena ponuda egzotičnih turističkih paketa. | − | Potreba za stalnim praćenjem novih tehnologija i ponašanja potrošača. |
| − | Nemogućnost organizovanja prevoza za putnike u okviru paketa. | − | Porast broja turističkih agencija koje posluju neodgovorno, nudeći niže cene i bez polisa osiguranja, što privlači klijente sa tim ponudama. |

**Izvor:** Autori

SWOT analiza omogućava identifikaciju trenutnog položaja turističke agencije u odnosu na konkurenciju i tržište, sagledavajući njene unutrašnje snage i slabosti, kao i spoljašnje mogućnosti i pretnje. Finansijska analiza ukazuje na stabilnost u kratkoročnim obavezama (likvidnost), ali ozbiljan pad solventnosti i smanjenje profitabilnosti u 2023. godini. Iako je agencija ostala profitabilna, smanjenje svih ključnih finansijskih pokazatelja sugeriše da bi u narednim godinama mogla biti potrebna dodatna optimizacija poslovanja.

**Tabela 4.** Finansijska analiza agencije Olympic travel za 2022. i 2023. godinu

| Godina | 2022. | 2023. |
|---|---|---|
| **Racio likvidnosti** | 1,98 | 1,95 |
| **Racio solventosti** | 55,11 | 8,21 |
| **Roa** | 24,63 % | 22,87% |
| **Stopa bruto dobitka** | 39,88% | 35,05% |
| **Stopa poslovnog dobitka** | 42,49% | 37,7% |
| **Stopa neto dobitka** | 31,23% | 25,06% |

**Izvor:** Autori

Na osnovu rezultata finansijske i racio analize, kao i uzimajući u obzir SWOT analizu, bilo je jasno da su potrebne značajne strateške promene. Olympic Travel je odlučio da početkom 2024. godine sklopi ugovor o zajedničkom ulaganju sa turističkom agencijom Morocco Fabulous Travel iz Maroka. Prema dogovoru, ove dve agencije će zajedno nastupiti na tržištima obe zemlje, nudeći jedinstvenu i atraktivnu turističku ponudu. Cilj je da ponuda bude privlačna svim generacijama i konkurentna u odnosu na druge agencije na tržištu.

Ponuda obuhvata vožnju kroz planine Atlasa i obilazak tradicionalnih berberskih sela, kao i jedinstveno iskustvo pustinje sa kamilama. Turisti imaju mogućnost privatnog obilaska pustinje od Marakeša do Fesa, uz pratnju vozača ili vodiča koji će im predstaviti kulturno bogatstvo ovog regiona. Takođe, tu je i opcija noćenja u luksuznim pustinjskim kampovima, kao i boravak u individualnim šatorima. Ovim korakom, Olympic Travel želi da unapredi i proširi svoju ponudu, nudeći specifična i atraktivna iskustva. Sa druge strane, agencija nudi različite vrste turizma u Srbiji, kao što su banjski, planinski i etno-seoski turizam. Najveće interesovanje

izazivaju planine Kopaonik i Zlatar, kao i nacionalni parkovi Tara i Uvac. Vrnjačka i Soko banja su najposećenije, dok se turisti u etno-selima poput Rtnja, Balaševića, Mećavnika i Sunčane reke upoznaju sa srpskom tradicijom, hranom i prirodnim lepotama.

Ugovor o zajedničkom ulaganju sklopljen je na godinu dana, sa mogućnošću produžetka koja će biti razmatrana krajem 2024. godine. Ovim korakom, Olympic Travel je aktivirao sve raspoložive kapacitete u cilju postizanja željenog rasta preduzeća. Potpisivanjem ovog ugovora sa agencijom Morocco Fabulous Travel iz Maroka, potvrđena je hipoteza H2 koja glasi da ponuda kojom učesnici zajedničkog ulaganja nastupaju na tržištu mora biti jedinstvena i atraktivna.

## 5. ZAKLJUČAK

Zajednička ulaganja, savremeni pristup koji koriste preduzeća u poslovanju, poseduje brojne prednosti, uključujući: efikasnije korišćenje dostupnih resursa, međusobno sticanje znanja između ugovornih strana, povećanje stručnosti i specijalizacije osoblja, mogućnost korišćenja resursa partnera za pružanje usluga klijentima, kao i brži i efikasniji ulazak na tržište u poređenju sa situacijom u kojoj bi preduzeće osnivalo svoj ogranak u stranoj zemlji. Svrsishodnost zajedničkog ulaganja može biti ograničavanje konkurencije, ali i pokretanje korisnih ekonomskih funkcija. Glavni motivi za sklapanje ugovora o zajedničkom ulaganju su: kooperacija, sredstvo za izbegavanje određenih poslovnih ograničenja, način zajedničkog finansiranja dogovorenog ulaganja i sredstvo povezivanja članova.

Na kraju 2022. godine, preduzeće Club Paradiso sklopilo je ugovor o zajedničkom ulaganju sa grčkim turoperatorom Filos. Prema ovom ugovoru, Filos je bio odgovoran za pružanje turističkih aranžmana, dok je zadatak Club Paradisa bio privući turiste iz zemlje i regiona. Nakon evaluacije rezultata ovog poduhvata krajem 2023. godine, utvrđeno je da je broj putnika porastao za oko 60.000 u 2023. godini u odnosu na prethodnu godinu, a najveći broj turista dolazio je iz Bosne i Hercegovine. Iz rezultata je potvrđena hipoteza H1, koja glasi: Zajednička ulaganja između dva preduzeća mogu unaprediti ključne performanse poslovanja.

Agencija Olympic Travel odlučila je početkom 2024. godine da sklopi ugovor o zajedničkom ulaganju sa turističkom agencijom Morocco Fabulous Travel iz Maroka. Prema sporazumu, ove dve agencije će zajedno nastupati na tržištu, nudeći jedinstvene turističke usluge u obe zemlje. Ovim potezom, Olympic Travel je iskoristio sve svoje kapacitete kako bi postigao željeni rast i modernizovao svoju ponudu aranžmana. Kroz ovaj ugovor o zajedničkom ulaganju, potvrđena je hipoteza H2, koja glasi: Ponuda sa kojom učesnici zajedničkog ulaganja nastupaju na tržištu mora biti jedinstvena i atraktivna.

Preduzeća koja odluče da se upuste u zajednička ulaganja mogu iskoristiti širi spektar resursa, veće tržišne mogućnosti, kao i veću efikasnost kroz zajedničko ulaganje i međusobnu saradnju. Ovaj model saradnje, ukoliko se pravilno primeni, može omogućiti održivu konkurentsku prednost i brži rast na tržištu. Međutim, uspeh zavisi od pažljivog odabira partnera i prilagođavanja ponude specifičnostima tržišta.

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# Utjecaj emocionalne inteligencije na akademski uspjeh prijediplomske razine Sveučilišta u Splitu
# The Impact of Emotional Intelligence on Academic Success at the Undergraduate Level of the University of Split

Željko Mateljak[1] 🔘

**Sažetak:** *Postojanje povezanosti između emocionalne inteligencije i akademskog uspjeha studenata prijediplomske razine studija ispitano na uzorku od 102 studenta diplomske razine studija Sveučilišta u Splitu. Akademski uspjeh studenata mjeren je prosječnom ocjenom ostvarenoj na prijediplomskoj razini, dok je emocionalna inteligencija mjerena pomoću četiri dimenzije emocionalne inteligencije, i to sposobnosti procjene vlastitih emocija, sposobnosti procjene tuđih emocija, sposobnosti upotrebe emocija te sposobnosti upravljanja emocijama. Rezultati istraživanja su pokazali da ispitanici koji imaju visoku razinu emocionalne inteligencije ostvaruju veću sposobnost procjene vlastitih emocija i manju sposobnost upravljanja vlastitim emocijama. Rezultati istraživanja su također pokazali da postoji pozitivan i statistički značajan utjecaj dvaju dimenzija emocionalne inteligencije (sposobnost procjene vlastitih emocija i sposobnost upotrebe emocija) na akademski uspjeh studenata poslijediplomske razine Sveučilišta u Splitu.*

**Abstract:** *The relationship between emotional intelligence and academic success was examined on a sample of 102 undergraduate students from the University of Split. Academic success was measured by the students' average grades achieved at the undergraduate level, while emotional intelligence was assessed through four dimensions: the ability to assess one's own emotions, the ability to assess others' emotions, the ability to use emotions, and the ability to manage emotions. The research results indicated that respondents with a high level of emotional intelligence showed greater ability in assessing their own emotions but lower ability in managing their emotions. Additionally, the results revealed a positive and statistically significant impact of two dimensions of emotional intelligence (the ability to assess one's own emotions and the ability to use emotions) on the academic success of postgraduate students at the University of Split.*

## 1. UVOD

Pojam emocionalne inteligencije relativno je nov pojam s prvim istraživanjima koji datiraju iz 90-ih godina prošlog stoljeća (Takšić i sur., 2006). Naime, ranije se na emocije gledalo isključivo kao na nešto negativno, nešto što onemogućuje racionalno razmišljanje i otežava rad (Ilić, 2008). Samim tim činilo se kako pojam „emocija" ne može biti uparen s pojmom „inteligencija".

Znanstvenici koji su promijenili ovaj stav bili su Salovey i Mayer (1990) koji su definirali pojam emocionalne inteligencije na kao niz emocionalnih sposobnosti koje uključuju sposobnost točnog opažanja, procjene i izražavanja emocija, sposobnost rasuđivanja uz pomoć emocija, sposobnost razumijevanja tuđih emocija te sposobnost upravljanja emocijama u svrhu promicanja emocionalnog i intelektualnog rasta (Salovey & Mayer, 1997, u Mayer, 2004).

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S druge strane, pojam akademskog uspjeha je definiran kao završetak određene razine studija koju je student upisao i na kojoj je savladao sve studentske obveze. Kada se pojam akademskog uspjeha detaljnije analizira, postavlja se pitanje kako mjeriti akademski uspjeh. Točnije, je li akademski uspješan student onaj tko tijekom studiranja ima bolji prosjek ocjena ili onaj tko je završio pohađani studij u definiranom vremenskom roku. Povezanost između emocionalne inteligencije i akademskog uspjeha prikazat će istraživanja navedena u nastavku rada.

Nadalje, proučavanjem postojećih empirijskih istraživanja došlo se do zaključka da je emocionalna inteligencija od iznimne važnosti za kliničku, radnu i akademsku okolinu (Takšić i sur., 2006., Jorfi i sur., 2010., Yahaya i sur., 2012.). Kod većine istraživanja akademska okolina je temelj istraživanja unutar koje se najveći naglasak stavlja na akademski uspjeh koji, osim postignuća tijekom studija (ocjene, razina usvojenog znanja i vještina), obuhvaća i postignuća ostvarena nakon studija (karijerni uspjeh) (York i sur., 2015).

Što se tiče akademskog uspjeha, velik broj autora je istražio faktore koji utječu na akademski uspjeh (Tinto, 1975; Betts & Morell, 1999; Tinto, 2001; Pritchard & Wilson, 2003; Parker i sur., 2004; Rohde & Thompson, 2007; Cyrenne & Chan, 2012; Pozo-Burgos i sur., 2022), i to socio-demografskih faktora poput spola, dobi, bračnog i radnog statusa te financijskih prilika te osobnih faktora kao što su različite kognitivne sposobnosti studenata. Kako se ispostavilo da ovi faktori objašnjavaju relativno mali dio varijabilnosti prosjeka ocjena na studiju, kao najčešće mjere akademskog uspjeha, autori su krenuli u potragu za drugim faktorima koji utječu na akademski uspjeh.

Primjerice, Parker i sur. (2004), u istraživanju provedenom nad 372 studenta manjeg sveučilišta u Ontariju (Kanada), došli su do rezultata kako emocionalna inteligencija utječe na akademski uspjeh. Naime, autori su zaključili da je razina emocionalne inteligencije veća kod uspješnijih studenata koji su ostvarili veću prosječnu ocjenu. S druge strane, u drugom istraživanju provedenom među studentima sveučilišta u Teheranu (Iran), zaključilo se da ne postoji statistički značajna veza između emocionalne inteligencije i akademskog uspjeha (Meshkat, 2011). Nekonzistentnost u rezultatima postojećih istraživanja ukazuje na to kako je utjecaj emocionalne inteligencije na akademski uspjeh empirijsko pitanje.

U ovom radu istražen je utjecaj emocionalne inteligencije na akademski uspjeh prijediplomske razine studenata Sveučilišta u Splitu. Studenti diplomske razine su odabrani jer je za iste bilo moguće pribaviti podatak o prosječnoj ocjeni ostvarenoj na prijediplomskom studiju, a koji je po uzoru na brojna ranija istraživanja poslužio kao mjera akademskog uspjeha. Za uzorak kojeg čine studenti odlučeno je jer je emocionalna inteligencija od iznimne važnosti za suočavanje sa stresnim situacijama (Fteiha & Awwad, 2020) kojima su naročito izloženi upravo studenti, i to najviše studenti početnih godina studija zbog novog okruženja, osamostaljenja, stvaranja novih te modifikacije postojećih odnosa s obitelji i prijateljima (Parker i sur., 2004).

Nakon prethodno definiranih pojmova emocionalne inteligencije i akademskog uspjeha te prikazanih rezultata do sada provedenih istraživanja, u radu će se istražiti glavna hipoteza rada koja glasi: Emocionalna inteligencija pozitivno utječe na akademski uspjeh studenata Sveučilišta u Splitu (H1). Glavna hipoteza rada istraživat će se pomoću četiri pomoćne hipoteze, i to sposobnost procjene vlastitih emocija pozitivno utječe na akademski uspjeh (H.1.1.), sposobnost upotrebe tuđih emocija pozitivno utječe na akademski uspjeh (H.1.2.), sposobnost upotrebe emocija pozitivno utječe na akademski uspjeh (H.1.3.) i sposobnost upravljanja emocijama pozitivno utječe na akademski uspjeh (H.1.4.). Dobiveni rezultati istraživanja prema svakoj pomoćnoj hipotezi prikazat će se u nastavku rada.

## 2. METODOLOGIJA ISTRAŽIVANJA

Međuovisnost utjecaja emocionalna inteligencije na akademski uspjeh provedeno je tijekom kolovoza 2023. godine primjenom metode anketnog upitnika nad ukupno 102 studenata diplomske razine studija. Prije prikazivanja dobivenih rezultata istraživanja, u tablici 1. prikazana je distribucija odgovora ispitanika na pitanja vezana uz dob i spol.

**Tablica 1.** Deskriptivna statistika ispitanika

| Spol | Broj ispitanika | Udio (%) |
|---|---|---|
| Muško | 78 | 76,5 |
| Žensko | 24 | 23,5 |
| **Ukupno** | **102** | **100** |
| **Dob (godine)** | **Broj ispitanika** | **Udio (%)** |
| 20-27 | 94 | 92,16 |
| 28-32 (i više) | 8 | 7,84 |
| **Ukupno** | **102** | **100** |

**Izvor:** Statistička obrada autora

Kao što prikazuje tablica 1., među ispitanicima dominira ženski spol kojih ima 78 ili 76,5%, dok se na muški spol odnosi 24 ispitanika ili 23,5%. Što se tiče dobi ispitanika najveći broj pripada dobnoj skupni ispitanika od 20 do 27 godina na koju otpada 94 ispitanika ili 92,16%.

## 3. INTERPRETACIJA REZULTATA ISTRAŽIVANJA

Nakon interpretacije rezultata istraživanja ispitanika prema spolu i dobi, u nastavku rada prikazat će se dobiveni rezultati istraživanja o utjecaju emocionalne inteligencija na akademski uspjeh studenata Sveučilišta u Splitu. Pretpostavka je da studenti s većom razinom emocionalne inteligencije ostvariti bolji akademskih uspjeh od studenata s nižom razinom emocionalne inteligencije. Akademski uspjeh se mjeri prosječnom ocjenom ostvarenom na prijediplomskom studiju, dok se razina emocionalne inteligencije mjerila putem 16 tvrdnji, gdje su ispitanici svakoj tvrdnji dodijelili ocjenu od 1 do 5, i to 1 - u potpunosti se ne slažem, 2 – ne slažem se, 3 – niti se ne slažem niti se slažem, 4 – slažem se i 5 - u potpunosti se slažem. Temeljem prethodno navedenih ocjena napravljene se dvije razine emocionalne inteligencije, i to niska razina emocionalne inteligencije s prosječnom ocjenom između 1 i 2 te visoka razina emocionalne inteligencije s prosječnom ocjenom između 4 i 5. Glavna hipoteza rada je mjerena pomoću četiri pomoćne hipoteze koje su se testirale analizom varijance s jednim promjenjivim faktorom i Kruskal – Wallisovim testom. Kod svih testiranja pomoćnih hipoteza, odluka o prihvaćanju ili odbacivanju hipoteza donesena je na razini signifikantnosti od 5%.

Utjecaj sposobnosti procjene vlastitih emocija na akademski uspjeh studenata prijediplomske razine mjerena je Kruskal-Wallisovim testom. Dobiveni rezultati istraživanja prikazani u tablici 2.

**Tablica 2.** Povezanost sposobnosti procjene vlastitih emocija i akademskog uspjeha

| Sposobnost procjene vlastitih emocija | Broj ispitanika | Prosječni rang | Signifikantnost testa |
|---|---|---|---|
| T 1 | 102 | 43,63 | 0,004 |
| T 2 | 102 | 42,09 | 0,019 |
| T 3 | 102 | 42 | 0,061 |
| T 4 | 102 | 42,06 | 0,02 |

**Izvor:** Statistička obrada autora

Iz tablice 2. je vidljivo da primjenom Kruskal-Wallisovog testa je utvrđena signifikantnost testa manja od 5% kod tri od četiri tvrdnje. Temeljem ovako dobivenih rezultata istraživanja zaključuje se da postoji statistički značajna razlika u rangovima u prosječnoj ocjeni ostvarenoj na prijediplomskom studiju između studenata koji imaju različite razine sposobnosti procjene vlastitih emocija. To znači da studenti koji imaju višu sposobnost procjene vlastitih emocija imaju i bolju prosječnu ocjenu ostvarenu na prijediplomskom studiju. Temeljem dobivenih rezultata istraživanja može se zaključiti da se prva pomoćna hipoteza prihvaća.

Dobiveni rezultati istraživanja o utjecaju *sposobnosti procjene tuđih emocija na akademski uspjeh,* kao druge pomoćne hipoteze, prikazani su u tablici 3.

**Tablica 3.** Povezanost sposobnosti procjene tuđih emocija i akademskog uspjeha

| Sposobnost procjene tuđih emocija | Broj ispitanika | Prosječni rang | Signifikantnost testa |
|---|---|---|---|
| T 1 | 102 | 48 | 0,022 |
| T 2 | 102 | 48,36 | 0,316 |
| T 4 | 102 | 33,56 | 0,123 |

**Izvor:** Statistička obrada autora

Tablica 3. prikazuje da je, primjenom Kruskal-Wallisog testa, utvrđena signifikantnost testa manja od 5% kod jedne od tri navedene tvrdnje temeljem čega se može zaključiti da ne postoji statistički značajna razlika u rangovima prosječnih ocjena ostvarenih na prijediplomskom studiju između studenata koji imaju različite razine sposobnosti procjene tuđih emocija. Temeljem ovako dobivenih rezultata istraživanja može se zaključiti sposobnost procjene tuđih emocija ne utječe na akademski uspjeh studenata prijediplomske razine te da se druga pomoćna hipoteza ne prihvaća.

Za razliku od prethodne dvije pomoćne hipoteze, utjecaj sposobnosti upotrebe emocija na akademski uspjeh, kao treće pomoćne hipoteze, testira se analizom varijance s jednim promjenjivim faktorom jer je ispunjen uvjet homogenosti varijanci (Levene-ov test homogenosti). Rezultati takvog testiranja prikazani u tablici 4.

**Tablica 4.** Povezanost sposobnosti upotrebe emocija i akademskog uspjeha

| Sposobnost upotrebe emocija | Levene-ov test | Analiza varijance |
|---|---|---|
| T 1 | 0,004 | 0,044 |
| T 2 | 0,868 | 0,041 |
| T 3 | 0,111 | 0,010 |
| T 4 | 0,702 | 0,128 |

**Izvor:** Statistička obrada autora

U tablici 4. se vidi da je kod tri tvrdnje empirijska signifikantnost testa veća od 5% čime je zadovoljen uvjet homogenosti varijanci uzoraka. Slijedom toga, provodi se analize varijance s jednim promjenjivim faktorom čije dobivene vrijednosti signifikantnosti F-testova kod tri tvrdnje manje od granične vrijednosti signifikantnosti testa od 5%. Temeljem ovako dobivenih rezultata istraživanja zaključuje se da sposobnost upotrebe emocija značajno djeluje na prosječnu ocjenu ostvarenu na prijediplomskom studiju te se treća pomoćna hipoteza rada prihvaća.

Isti postupak se provodi i kod testiranja utjecaja sposobnosti upravljanja emocijama na akademski uspjeh studenata prijediplomske razine kao četvrte pomoćne hipoteze. Dobiveni rezultati istraživanja rezultati prikazani su u tablici 5.

**Tablica 5.** Povezanost sposobnosti upravljanja emocijama i akademskog uspjeha

| Sposobnost upravljanja emocijama | Levene-ov test | Analiza varijance |
|---|---|---|
| T 1 | 0,149 | 0,322 |
| T 2 | 0,177 | 0,433 |
| T 3 | 0,557 | 0,310 |
| T 4 | 0,019 | 0,016 |

**Izvor:** Statistička obrada autora

Tablice 5. prikazuje da je kod tri tvrdnje empirijska signifikantnost testa veća od 5% čime je zadovoljen uvjet homogenosti varijanci uzoraka. Slijedom toga, provodi se analize varijance s jednim promjenjivim faktorom čije dobivene vrijednosti signifikantnosti F-testova kod tri tvrdnje nisu manje od granične vrijednosti signifikantnosti testa od 5%. Temeljem ovako dobivenih rezultata istraživanja zaključuje se da sposobnost upravljanja emocijama ne utječe na akademski uspjeh studenata prijediplomske razine studija te se četvrta pomoćna hipoteza rada ne prihvaća.

Temeljem prethodno analiziranih rezultata istraživanja zaključuje se da se glavna hipoteza rada djelomično prihvaća.

## 4. ZAKLJUČAK

Pojam emocionalne inteligencije i njen značaj u upravljanju poduzećima nije bio toliko važan u uvjetima stabilnog poslovnog okruženja. Promjenom tržišnih uvjeta, stalnim napretkom tehnologije i sve složenijim poslovnim okruženjem emocionalna inteligencija je postala sve važnije među studentskom populacijom. U kontekstu emocionalne inteligencije posebna se pozornost stavlja na studente kod kojih je emocionalna inteligencija itekako potrebna s aspekta donošenja životnih odluka. Stoga se u ovom radu emocionalna inteligencije istražuje kod studenata koji u budućnosti postaju važan faktor na tržištu radne snage. Kada se promatraju studenti i njihova razina emocionalne inteligencije postavlja se pitanje koji je njen rezultat. U tom kontekstu je, u ovom radu, emocionalna inteligencija povezana s akademskim uspjehom studenata. Stoge je za potrebe ovog rada provedeno istraživanje o utjecaju emocionalne inteligencije na akademski uspjeh studenata prijediplomske razine studija. Istraživanje je provedeno nad 102 studenta diplomske razine studija Sveučilišta u Splitu. Rezultati istraživanja su pokazali da studenti koji imaju višu sposobnost procjene vlastitih emocija imaju i bolju prosječnu ocjenu ostvarenu na prijediplomskom studiju, da sposobnost procjene tuđih emocija ne utječe na akademski uspjeh studenata prijediplomske razine, da sposobnost upotrebe emocija značajno djeluje na prosječnu ocjenu ostvarenu na prijediplomskom studiju, da sposobnost upravljanja emocijama ne utječe na akademski uspjeh studenata prijediplomske razine studija. Buduća istraživanja na ovu temu mogla ići u smjeru da se, umjesto akademskog uspjeha, koristi zadovoljstvo studenata tijekom studenskog ciklusa koja ne bi bila samo orijentirana na Sveučilište u Splitu nego na druga hrvatska Sveučilišta.

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# Održivi turizam na primjeru eko kampova u Republici Hrvatskoj
# Sustainable Tourism on the Example of Eco Camps in the Republic of Croatia

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**Sažetak:** *Održivi turizam i održivi razvoj imaju veliku ulogu za očuvanje prirode te sa svojom ulogom da smanje zagađenje i utjecaj na okoliš, pri kampiranju stvaraju okruženje u kojem se koriste obnovljivi izvori energije i materijali koji ne štete prirodi. Eko-kamp predstavlja sistem kvalitetnog upravljanja i zaštite životne sredine. Taj koncept u svakom pogledu ponude vodi veliku brigu o prostoru u cilju ostvarenja vizije kvalitetnog okruženja i smanjenja troškova. Svrha rada je sustavno istražiti i argumentirano obrazložiti specifične oblike kampova u fokusu održivog razvoja, odnosno eko kampove. U radu se empirijski istražuju stavovi i mišljenja gostiju o stupanju zadovoljstva elementima ponude unutar ekoloških kampova u Republici Hrvatskoj, odnosno o motivima dolaska i odabira istih. Generalni je zaključak istraživanja da su ispitanici izjavili da teže izboru eko kampova i eko kampiranju te da im veliku važnost ima usmjerenost kampa na održivost, s minimalnim utjecajem na okoliš te čista i pametna energija, ekološki osviješteni smještaj i stvaranje podrške i suradnja s lokalnom zajednicom.*

**Abstract:** *Sustainable tourism and sustainable development play a significant role in preserving nature by reducing pollution and environmental impact. In the context of camping, this creates an environment where renewable energy sources and eco-friendly materials are used. An eco-camp represents a system of quality management and environmental protection. This concept carefully manages space in every aspect of its offer to achieve the vision of a high-quality environment while reducing costs. The purpose of this paper is to systematically research and provide a reasoned explanation of specific types of camps focused on sustainable development, particularly eco-camps. The paper empirically examines the attitudes and opinions of guests regarding their satisfaction with the elements offered within ecological camps in the Republic of Croatia, focusing on their motives for choosing and visiting these camps. The general conclusion of the research is that respondents indicated a preference for eco-camps and eco-camping. They highly value the camp's focus on sustainability, minimal environmental impact, clean and smart energy, eco-conscious accommodations, and fostering support and collaboration with the local community.*

## 1. UVOD

Kamping turizam danas je vrlo razvijen i tražen oblik turizma. Zahvaljujući svojoj fleksibilnosti i oslobođenosti od prirode, kamp svojim posjetiteljima nudi kvalitetan odmor i zabavu, u kombinaciji s opuštanjem i bijegom od svakodnevice. Uz samo kampiranje, sve više turista preferira kampiranje i pridaje važnost očuvanju prirode. Održivi turizam i razvoj imaju važnu ulogu u očuvanju prirode i pridonose poboljšanju turizma kroz svoju ulogu u smanjenju onečišćenja, utjecaja kampiranja na okoliš i stvaranju okoliša koji koristi prirodne resurse, energiju i materijale iz obnovljivih izvora. Kampiranje je postalo luksuz, dijelom zbog sve skuplje

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kamping opreme i smještaja, a dijelom i zbog sve bolje kvalitete ponude i sadržaja. Održivost kampova jamči sve, od zaštite okoliša i dobrog gospodarenja resursima do niza visokokvalitetnih sadržaja i povezanosti s prirodom. Važno je provoditi poboljšanja u ovom području i poboljšati kvalitetu aktivnosti i sadržaja, kao i zaštitu okoliša i održivost. Rad nastoji prikazati trenutno stanje turističkih kampova i eko kampova. Jedan dio rada je posvećen povijesti kamping turizma i njegovom razvoju. Rad se fokusira na održivi turizam i ekološki prihvatljiva kamp poduzeća koja igraju važnu ulogu u razvoju i unapređenju eko-kampiranja. Empirijskim istraživanjem pokušalo se saznati mišljenje ispitanika o ponudi i sadržajima kampa, kao i njihove stavove vezano uz eko kampiranje.

## 2. RAZVOJ I TRENDOVI KAMPING TURIZMA

Razvoj kamping turizma od velike je povijesne važnosti, proteže se od davnina i često je povezan s nomadskim načinom života. Ljudska potreba za kretanjem, slobodom i istraživanjem poticala je ljude na putovanja, a kampiranje je ovdje imalo važnu povijesnu ulogu. Kampisti su ti koju su bili prvi putnici koji su zbog prirode i rekreacije putovali na odmore u prirodu. Oni i danas predstavljaju većinu putnika koji su motivirani željom za boravkom u prirodi. Kampiranje je u svojoj povijesti prošlo kroz nekoliko faza, a najvažnija su tri pravca u kojima se odvija i nastavlja kamping turizam.

Prvi pravac je divlje kampiranje. U ovom pravcu kampisti smatraju da je ovo pravi bijeg u prirodu od urbane sredine. Divlje kampiranje predstavlja bitnu ideju u turizmu a to je baviti se vremenom koje je slobodno. Divlje kampiranje obuhvaća nedostatak udobnosti i nelagodu. Kampisti koji volje ovakav način kampiranja nisu dio turističke ponude i predstavljaju nekontrolirani dio turističkog prometa. Ne troše puno ali su iznimno ekološki osviješteni (Rudančić & Sladoljev, 2021).

Drugi pravac kamping turizma je povezan sa rastom turizma 60-ih godina 20. stoljeća, koji je u većim smještajnim objektima kao što su hoteli i vile, no odmor tada je bio preskup za radno stanovništva. Mladi tada koriste šatore kao nastambe za kampiranje. Tada nije bilo rasprave što se tiče kategorija kampa, u kampu su se nalazile zajedničke kupaonice, tuševi, praonice te prodavaonice sa osnovnim stvarima. Lokalne zajednice su prepoznale izvore dodatne zarade te su se tako počele širiti i ponude kampa i konkurencija je počela ulagati više u komociju kampista. Za kamping turista iz drugog pravca može se reći da postepeno prelazi iz konvencionalnog kampista u glampera (Rudančić & Sladoljev, 2021).

Treći pravac čine rekreativci, oni na kampiranje gledaju kao aktivnosti za rekreaciju povezanu sa slobodnim vremenom, zabavom te opuštanjem i zbližavanje sa obitelji. Obiteljsko kampiranje je vrlo kvalitetan način da obitelj provodi kvalitetno vrijeme skupa te prikazuje kvalitetu povezivanja i uživanja u prirodi (Sladoljev & Pilar, 2020).

Trendovi kamping turizma proizlaze iz potrage za novim i inovativnim kamping proizvodima i metodama. Vraća se temeljnim vrijednostima kampiranja, fokusira se na smještaj u kampovima i analizira karakteristike nove potražnje za kampiranjem za kampere kao novom vrstom smještaja. Trenutno je kamping turizam važan čimbenik razvoja konkurentnosti europskog turizma, a kamping predstavlja jedan od najvažnijih segmenata europske turističke ponude u cjelini. Preko 15% ili 353 milijuna svih europskih turističkih noćenja u takozvanim „objektima kolektivnog smještaja", zabilježeno je upravo u kampovima (Eurostat, 2021). Trenutne promjene na europskom tržištu kampiranja ogledaju se u promjenama stilova kampiranja i u primjeni novih

poslovnih modela. Europski turistički mega trendovi prema Cerović (2014) su: globalizacija kamping industrije koja donosi promjene u tehnologiji, liberalizaciju proizvoda i usluga i povećanu mobilnost; demografske promjene i turizam „sijede kose" koji nadolazi; pokret za održivim razvojem koji cijeni ljudski kapital i slavi prirodne i kulturne resurse; pristup informacijama – internet, tražilice, mobilni telefoni, GPS navigacija i digitalna TV povećali su dostupnost i transparentnost informacija; personalizacija – stvaranje proizvoda za kampiranje po mjeri pojedinca, a ne za ciljanu skupinu postaje izazov za menadžment u kampovima; održivost – kamping turizam može dati svoj doprinos ovom trendu razvojem na održiv i ekološki prihvatljiv način. Inovativnost u ekologiji smatra se izazovom za kampove diljem Europe; zdravlje i dobrobit – uzimajući u obzir ovaj trend predstavlja rješenje sezonalnosti kamping turizma i kampove čini atraktivnim destinacijama tijekom cijele godine. Povećava se broj kampova sa specijalizacijom u uslugama i/ili opremi. Neki od novijih ponuda u kamping turizma su dječji kampovi, eko-kampovi, tehnološki kampovi, tematski kampovi, kampovi za životinje, sportski kampovi i drugi. Kamping turizam time dopire do mladih generacija turista, zbog čega ulazi u fazu reklamne ofenzive i fazu *cool kampiranja*.

Razvoj tržišta kamping turizma uvjetuje sve veću potražnju za smještajem u kampovima, posebice za smještajem u mobilnim kućicama. Postoji potreba za udobnijim i prostranijim mobilnim kućicama. Stoga treba očekivati promjene u strukturi stambenih jedinica namijenjenih kampiranju. Očekuje se da će novo upravljanje kampovima donijeti promjene u kamping proizvodima i uvesti inovativne oblike kamping smještaja. Nove tehnologije rješenja su budućnosti, a poboljšanja su mjere koje pridonose zaštiti i očuvanju okoliša. Jedna od mjera je izrada specifičnih razvojnih strategija koje ne dopuštaju prevladavanje pojedinih elemenata planiranja razvoja i nepovratno uništavanje prostora na kojem se kamp nalazi. Ako bi se to dogodilo, razvoj turizma bi mogao izmaći kontroli i izazvati golemu štetu okolišu.

## 3. ODRŽIVOST RAZVOJA HRVATSKOG KAMPING TURIZMA

Turistički proizvod mora biti inovativan i prilagođen karakteristikama i potrebama suvremenog turista, koji izražava želju za novim iskustvima i događanjima, svjestan je kvalitete ponude, ima izražen osjećaj za zaštitu prirode te ekološke i socijalne aspekte, preferira aktivnosti i kulturne aktivnosti, i ekološka pitanja zajednice, ali s naglaskom na autohtone elemente. Ponuda se mora nositi s promjenama, pratiti turističku potražnju i nastojati je preduhitriti. Stoga je nužno implementirati nove oblike ponude kao oblik kvalitativne transformacije (Blažević & Peršić, 2009). Postoje četiri sile društvenih promjena koje su dovele do potrebe za održivošću u turizmu: 1) nezadovoljstvo postojećim proizvodima; 2) rastuća svijest o okolišu i kulturna osjetljivost; 3) ostvarivanje dragocjenih resursa koje posjeduju i njihove ranjivosti po odredišnim regijama; i 4) promjenjivi stavovi organizatora turističkih putovanja i turoperatora (Liu, 2010).

Iako se kampiranje uglavnom poistovjećuje s ljetnim turizmom, korištenjem novih tehnologija ono više nije rezervirano samo za ljetne dane. Diversificirana ponuda prilagođena samo jednom tipu gostiju ili ponuda specifična za određene dijelove godine najlakše će pronaći put do gostiju, produlje sezonu i daje najjednostavniju mogućnost nadogradnje. Kampisti su spremni platiti dobru cijenu za ljetovanje „pod vedrim nebom", no samo ako u tom okruženju mogu ispuniti svoje snove, baviti se svojim hobijima i uživati na istoj razini duhovnog luksuza kao i gosti u hotelima s pet zvjezdica (Germann Molz, 2014). Kvaliteta okoliša odnosno cjelokupnog prostora kampa i njeno održavanje uključuje kontrolu utjecaja turizma na okoliš, minimiziranje svih ekoloških utjecaja i problema, te s druge strane investiranje u zaštitu okoliša i obnovu već oštećenog

okoliša. Budući da se radi o pretežno kvalitativnom razvojnom opredjeljenju, operativna primjena koncepta održivog razvoja podrazumijeva da kampovi imaju razvijen menadžment okoliša (engl. *Environmental Management*) koji znači primjenu menadžerskih znanja, tehnika i metoda pri upravljanju kampovima s ciljem unapređenja kvalitete prirodnog i oplemenjenog prostora i posebice očuvanja okoliša koji je s različitih aspekata značajan za poslovanje i ima esencijalnu važnost za daljnji razvoj. U kampovima se sve više traži da usluga bude bolja, raznovrsnija, kvalitetnija i razdijeljena na manje gostiju nego prije, odnosno traži se individualan-personalizirani pristup (Amerta, 2018).

Kampovi u Republici Hrvatskoj sve su više usmjereni na zaštitu i očuvanje okoliša u kojem se nalaze. Važno je da se eko-kampovi usredotoče na stalna ulaganja, a ne na maksimiziranje prihoda i koriste visoko održive tehnologije kao što su solarna energija, napredni sustavi za pročišćavanje vode i selektivno recikliranje otpada. Također je važno da se poslovanje kampova fokusira na održivost s minimalnim utjecajem na okoliš, zeleni život, čistu i pametnu energiju i podršku lokalnoj zajednici.

**Tablica 1.** Ključne značajke upravljanja održivim razvojem u kampovima

| | |
|---|---|
| **EDUKACIJA GOSTIJU O OČUVANJU OKOLIŠA** | Pružanje informacija i aktivnosti o lokalnoj biološkoj raznolikosti. Pružanje lokalnih mogućnosti prijevoza s niskim udjelom ugljika (bicikl, električna vozila itd.). |
| **UPRAVLJANJE ZELENIM POVRŠINAMA** | Saditi autohtone vrste biljaka. Postaviti zelene zidove i krovove. Koristiti prirodne zelene barijere. Instalirati kontrolirane sustave za navodnjavanje i za navodnjavanje koristiti sivu vodu ili otpadne vode. Ugraditi osvjetljenje sa slabim utjecajem na okoliš. |
| **ENERGETSKA UČINKOVITOST** | Provest sustav/plan upravljanja energijom. Izgraditi ili naknadno ugraditi učinkovite obloge zgrada. Osigurati optimizirani dizajn i rad sustava grijanja i hlađenja. Instalirati učinkovite, automatizirane niskoenergetske sustave osvjetljenja. Koristiti dizalice topline i opcije obnovljive energije. |
| **UŠTEDE VODE** | Provesti plan upravljanja vodama. Ugraditi učinkovite armature za vodu s naglaskom na uređaje za mjerenje vremena prikaza i slavine. Instalirati učinkovitu opremu za kuhinju i praonicu rublja. Ponovno upotrijebiti sivu vodu za ispiranje zahoda. |
| **MINIMIZIRANJE OTPADA** | Provoditi plan gospodarenja otpadom i izbjegavati otpad kad god je to moguće za tad kampova. Odvojiti sav otpad nastao kampiranjem u frakcije koje se mogu reciklirati. Poslati organski otpad na anaerobnu reciklažu, ako je dostupna ili poslati na kompostiranje, a rabljeno ulje poslati za proizvodnju biodizela. Osigurati uređaje za prikupljanje i prikladno odvajanje otpada. |
| **PRIRODNI BAZENI** | Instalacija novog bazena ili dogradnja postojećeg bazena sa sustavom koji koristi prirodne mehanizme filtriranja umjesto uobičajenih metoda dezinfekcije. |
| **GOSPODARENJE OTPADNIM VODAMA** | Poslati otpadne vode u komunalni uređaj za pročišćavanje otpadnih voda koji pruža barem sekundarni tretman. Instalirati uređaj za pročišćavanje voda na licu mjesta koji pruža barem sekundarni tretman. |

**Izvor:** Rudančić & Sladoljev u Styles i dr., 2013., str. 533

Glavni utjecaji kamping turizma na okoliš su prijevoz do i od kampova, energija, onečišćenje zraka zbog sve većeg prometa u regiji i emisije stakleničkih plinova. Ovi čimbenici su izvan kontrole logora. Kupac je taj koji bi trebao svjesnije i dobrovoljno razmišljati o ograničavanju vožnje i onečišćenja zraka. Gosti kampa mogu se potaknuti da manje koriste kamp prikolice i automobile, upoznati ih s biciklizmom i praktičnijim oblicima prijevoza za povezivanje s prirodom. Zahvaljujući relativno velikim zelenim površinama koje zauzimaju kampovi i uvođenju

velikog broja gostiju u potencijalno ekološki osjetljiva područja, kampovi mogu generirati značajne utjecaje na biološku raznolikost (izravno i neizravno). Međutim, ruralni ambijent mnogih kampova pruža idealnu priliku za educiranje o prirodi koja potencijalno može povećati turističku svijest o ekološkim pitanjima i imati trajni utjecaj na turističko ponašanje. Zaštita okoliša jedan je od najvažnijih ciljeva održivog razvoja kamping sektora u Republici Hrvatskoj, jer je čist i očuvan okoliš najvrjedniji resurs. Sve to vrijedi za gotovo sve hrvatske kampove, kojima je zdrav i atraktivan okoliš jedna od osnovnih atraktivnih osnova te je njegovo očuvanje preduvjet njihova razvoja i konkurentnosti, što se ne može zanemariti u planiranju, upravljanju i daljnjem razvoju.

## 3.1. Ekološko odgovorno poslovanje

Kampiranje u Republici Hrvatskoj se tretira u nekoliko pravnih propisa. Prvi je Zakon o ugostiteljskoj djelatnosti (NN, 2020/42), članak 29. Te se u njemu kampiranje definira kao boravak gosta pod šatorom, u kamp prikolici i drugoj odgovarajućoj opremi za smještaj na otvorenom prostoru. Drugi je Pravilnik o razvrstavanju, minimalnim uvjetima i kategorizaciji ugostiteljskih objekata iz Kampovi i druge vrste ugostiteljskih objekata za smještaj (NN, 2016/54), te definira kamp kao smještajni poslovni objekt u kojem se gostima pružaju usluge kampiranja, smještaja u određenom prostoru na otvorenom. Prema Eurostatu kamp se svrstava u ostale objekte za kolektivni turistički smještaj koji uključuje kuće za odmor, turističke kampove i druge kolektivne objekte.

**Tablica 2.** Ekološki uvjeti koji se boduju kod kategorizacije kampa u Republici Hrvatskoj

| ELEMENTI | BOD |
|---|---|
| 1. Korištenje alternativnih izvora energije | 2 |
| 2. Parkiralište za vanjske posjetitelje izvan kampa | 2 |
| 3. Dvostruko korištenje pitke vode | 2 |
| 4. Prirodne osobitosti kampa (očuvanje prirodne šume, drveća, prirodne plaže i sl.) | 2 |
| 5. Vodokotlići sa stop tipkama, slavine s perlatorima i sistemom samo-zatvaranja | 2 |
| 6. Specifično i autohtono hortikulturno uređenje kampa | 2 |
| 7. Razvrstavanje otpada | 2 |
| 8. Primjena štedljivih žarulja, limitatora snage, automatskog isključivanja dijela rasvjetnih tijela | 2 |
| 9. Zajednički prostor za roštilj | 2 |
| 10. Priznanja za zaštitu okoliša ( Plava zastava, zeleni list u vodiču ADAC-a i sl.) | 2 |
| 11. Prometne prepreke za ograničavanje brzine vozila | 2 |
| 12. Certifikat ISO 14001 | 2 |
| 13. Ograničenje prometa kampom u određeno vrijeme | 2 |
| 14. Izdvojeno mjesto u blizini ulaza u kamp za smještaj kampera s kratkim boravkom | 2 |
| 15. Znakovi ograničenja brzine u kampu | 2 |
| 16. Na kolnom ulazu noću osvijetljen plan objekta s ucrtanim prometnicama te ostalim sadržajima u objektu do 50 smještajnih jedinica | 2 |

**Izvor:** NN, 2019/120

## 4. EMPIRIJSKO ISTRAŽIVANJE ZADOVOLJSTVA ELEMENTIMA PONUDE UNUTAR EKOLOŠKIH KAMPOVA

Anketno istraživanje provedeno je u svrhu ispitivanja turista koji borave u hrvatskim eko kampovima o elementima ponude i njihovim stavovima o eko kampu. Postavljenim pitanjima od ispitanika se pokušavaju doznati njihovi stavovi i mišljenja o kampu. Cilj anketnog istraživanja je utvrditi stupanj zadovoljstva turista/gosta i steći uvid o upoznatosti ispitanika sa pojmom eko kampa i njegovom važnosti.

## 4.1. Metodologija istraživanja

Istraživanje za potrebe rada se provodilo u razdoblju od mjeseca srpnja do kolovoza 2023. godine. Sva pitanja u upitniku su bila obavezna. Većina pitanja je bila zatvorenog tipa sa ponuđenim odgovorima, kako bi se prikupili podaci o slaganju ispitanika s različitim tvrdnjama, a tek četiri pitanja su bila otvorenog tipa gdje su ispitanici mogli slobodno izraziti svoje mišljenje na ponuđena pitanja. Anketi je pristupilo 280 ispitanika (N=280). Pitanja iz anketnog upitnika mogu se podijeliti u par skupima. Te skupine su: socio-demografska skupina pitanja; ciljana skupina pitanja - u kojem se ispitanike traži da ocijene stupanj zadovoljstva elementima turističke ponude u eko kampu; ciljana skupina pitanja - u kojima se od ispitanika traži da izabere tvrdnju koja je za njih točna ovisno o tematici pitanja; te slobodna pitanja – za primjedbe i sugestije. Anketa je provedena putem internetskog obrasca. Ispitanicima-gostima eko kampova bilo je ponuđeno otvoriti i pristupiti obrascu putem linka koji im je dostavljen putem maila. Sudjelovanje u istraživanju je bilo dobrovoljno i potpuno anonimno. Anketni upitnik je ponuđen na dva jezika, hrvatskom i engleskom što je dalo mogućnost boljeg prikupljanja informacija od šire skupine ispitanika.

## 4.2. Rezultati istraživanja

Rezultati provedenog istraživanja prikazani su u grafičkom obliku zajedno sa pripadajućim pitanjima. Zbog limitiranosti obima rada, prikazani su samo ključni rezultati istraživanja koji slijede u daljnjem opisu rada. Stoga, odgovorima na pitanja o dobi približno 17% ispitanika se izjasnilo da se nalaze u razdoblju od 18-25 godina s time daje podatak o mlađoj populaciji koja je zainteresirana i podržava ovakav tip kampa. Približno 26% ispitanika se izjasnilo da se nalaze u dobi između 26-35 godina, dok se oko 26% ispitanika izjasnilo da se nalaze u dobi između 36-45 godina. Te sa zadnjom najvećom skupinom od 22% u dobi između 46-55 godina te tri generacije tvore ispitanike srednje životne dobi i time može se utvrditi da su te generacije ispitanici koji najviše borave u kampovima ovog tipa. Dok preostala skupina od približno 9% dobi između 56-65 godina daje informacije manje zastupljenosti i skupine od 65 godina i više nema uključene u anketu. Nadalje, većina od 54% su ispitanice ženskog spola, a druga polovica od 46% ispitanika su muškarci. Na pitanje zemlje porijekla dolaska u hrvatske eko kampove većina ispitanika je odgovorilo da dolazi iz Hrvatske, čak 76%, dok ispitanika koji dolaze iz Slovenije ima 14%. Ispitanika koji dolaze iz Bosne i Hercegovine ima 10%, a ispitanika koji dolaze iz Slovačke tek jako mali postotak Ovi podaci pokazuju da u odabranom mjesecu većina domaćih gostiju boravi u kampu dok je preostala manjina stranih državljanina iz susjednih zemalja. Odgovorima na pitanja o ostvarenim noćenjima 58% ispitanika je odgovorilo da borave više od 7 noći, dok je 41% ispitanika odgovorilo da boravi 4-7 noći. A tek mali udio od 1% boravi 1-3 noći u kampu. Iz ovih podataka vidi se da većina ispitanika boravi u kapu u prosjeku oko 7 noći i više. Odgovorima na pitanja o odluci o dolasku u kamp 16% ispitanika je odgovorilo da se odlučilo za ovaj kamp putem turističkih agencija, što mogu biti organizirane grupe ili u paru. Sljedeća skupina ispitanika je odgovorila da se njih 34% odlučilo na dolazak putem interneta/društvenih mreža a najveći postotak od 49% ispitanika se odlučila na dolazak zbog preporuke prijatelja ili obitelji. Preostali ispitanici od 1% su odgovorili da su se odlučili na dolazak zbog drugih nenavedenih primjera. Iz ovoga se može zaključiti da većina turista prati preporuku prijatelja i obitelji.

U istraživanju na pitanje o razlogu odabira Eko kampa ispitanici su trebali odlučiti između 5 ponuđenih opcija – u potpunosti se ne slažem, ne slažem se, niti se slažem niti se ne slažem, slažem se i u potpunosti se slažem. Opcije pozitivnih odgovora su sužene u opciju slažem se, dok su opcije negativnog odgovora sužene u opciju ne slažem se tako da su finalno prikazane u tri

opcije. Od 280 ispitanika svi ispitanici su se izjasnili da se slažu da su izabrali Eko kamp zbog ponude i sadržaja. Za privlačnost lokacije također 100% ispitanika je odgovorilo da se u potpunosti slažu. Isto tako se podudaraju odgovori za privlačan ambijent na koje je 98% ispitanika odgovorilo da se slaže a samo 2% da se niti slaže niti ne slaže. Za oznaku eko kampa 76% ispitanika je odgovorilo da se slaže, 12% ispitanika je odgovorilo kako se niti slaže niti ne slaže te njih 12% kako se ne slaže. Na zadnji razlog, brigu o okolišu 91% ispitanika je odgovorilo da se slaže te njih preostalih 9% da se niti slažu niti ne slažu. Na ovo pitanje većina ispitanika je odgovorilo pozitivno, tek mali postotak je odgovorilo da se niti slaže niti ne slaže i ne slaže.
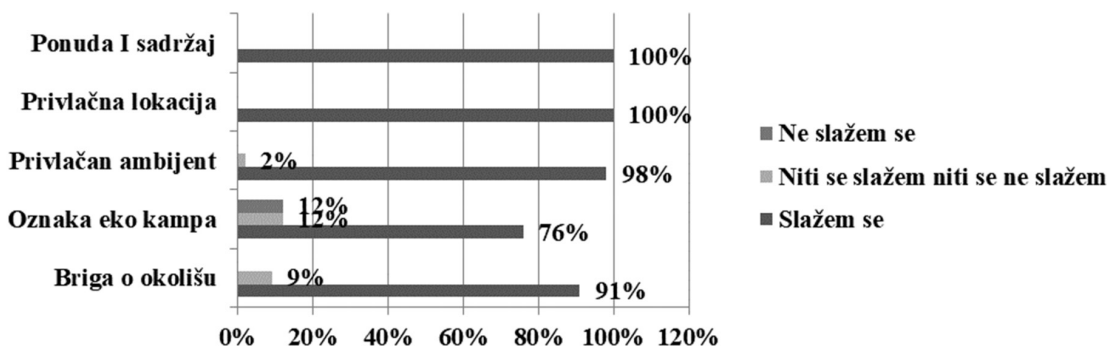


**Grafikon 1.** Struktura odgovora ispitanika vezanih za razlog odabira Eko kampa
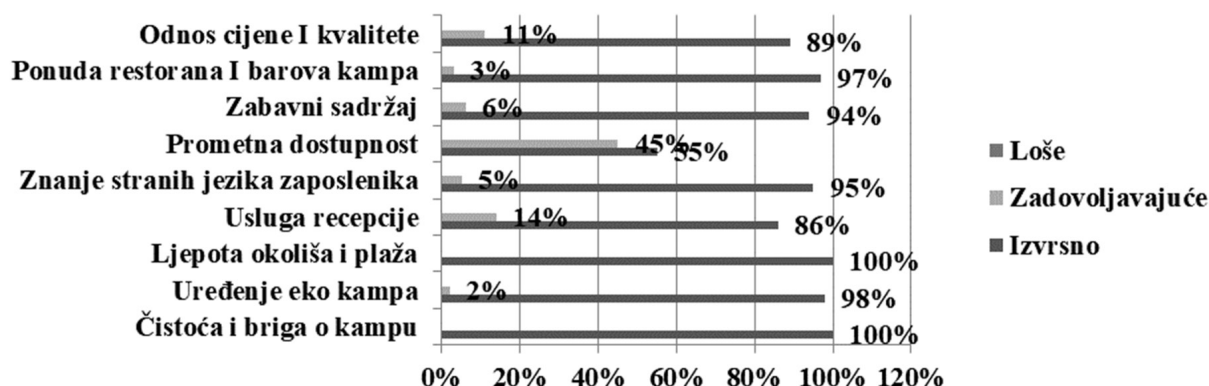**Izvor:** Obrada autora prema odgovorima iz anketnog istraživanja

Na pitanje o motivu dolaska ispitanici su imali ponuđena pet motiva dolaska te su ih trebali vrednovati po njihovoj istinitosti. Svi ispitanici su odgovorili da se ne slažu da je motiv dolaska poslovan. Za dječji i interaktivni sadržaj većinski dio ispitanika njih 60% se ne slaže da je to motiv dolaska. Njih 5% je odgovorilo da se niti slaže niti ne slaže. Dok njih 35% se slaže sa tim motivom. Iz ovih odgovora može se zaključiti da više od pola ispitanika nema i/ili ne dolazi s djecom. Za animaciju kao motiv dolaska u kamp 75% ispitanika je odgovorilo da se slaže te se 20% ispitanika niti slaže niti ne slaže a tek mali postotak od 5% se ne slaže. Ovim odgovorimo se može zaključiti da 75% ispitanika navodi animaciju kao motiv dolaska. Za zabavu i noćni život kao motiv dolaska u kamp 55% ispitanika je odgovorilo da se slaže, te se 15% niti slaže niti ne slaže. Dok je 30% ispitanika odgovorilo da se ne slaže. Odgovori pokazuju da se za motiv zabave i noćnog života odlučilo 55% što je više od pola ispitanika. Za motiv odmora i rekreacije 90% ispitanika je odgovorilo da se slaže, 10% da se ne slaže, većini ispitanika je odmor i rekreacija glavni motiv na odmoru u kampu.
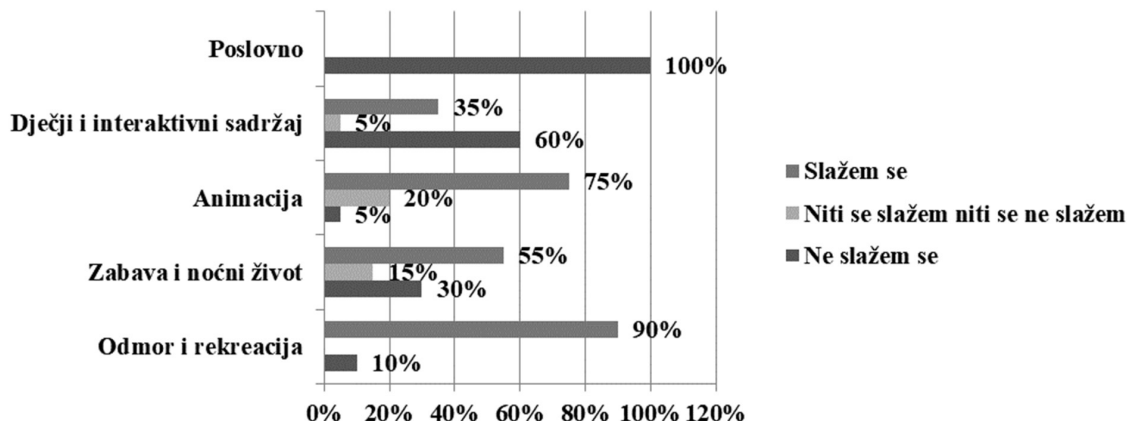


**Grafikon 2.** Struktura odgovora ispitanika vezanih za motive dolaska u Eko kamp
**Izvor:** Obrada autora prema odgovorima iz anketnog istraživanja

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Na pitanje vezano za zadovoljstvo elementima eko kampa ispitanicima je bilo ponuđeno devet elemenata, te su ih trebali vrednovati sa vrlo izvrsno, izvrsno, zadovoljavajuće, loše i vrlo loše. Odgovori su zabilježeni u tri ocjene izvrsno, zadovoljavajuće te loše. Za element čistoće i brige o kampu 100% ispitanika je odgovorilo sa izvrsnim. Svi ispitanici su pozitivno ocijenili ovaj element. Za uređenje eko kampa 98% ispitanika je odgovorilo sa izvrsnim te je njih 2% odgovorilo sa zadovoljavajućim. Za ljepotu okoliša i plaža 100% ispitanika je odgovorilo sa izvrsnim. Za usluge recepcije 86% odgovara sa izvrsnim te 14% njih odgovara sa zadovoljavajućim. Za znanje stranih jezika zaposlenika 95% ispitanika odgovara sa izvrsnim te njih 5% sa zadovoljavajućim. Za prometnu dostupnost 55% ispitanika je odgovorilo sa izvrsnim, a njih 45% sa zadovoljavajućim. Za zabavni sadržaj 94% ispitanika odgovara sa izvrsnim a tek 65 ispitanika sa zadovoljavajućim. Sljedeća je ponuda restorana i barova u kampu te za taj element 97% ispitanika odgovara sa izvrsnim te njih 3% sa zadovoljavajućim. Zadnji element je odnos cijene i kvalitete te su na njega ispitanici odgovorili sa 89% za izvrsno a 11% sa zadovoljavajućim. Kroz sve elemente može se zaključiti da su sve ocijene elemenata pozitivne i zadovoljstvo ispitanika se jasno vidi iz odgovora. Najveće ocijene su ispitanici dali za usluge na recepciji i znanje stranih jezika zaposlenika što znači da je ostavljen dobar prvi dojam pri dolasku u kamp i tokom boravka u njemu od strane zaposlenika. Naposljetku, na pitanje o predstavljanju oznake Eko kampa pri odabiru kampa ispitanici su imali mogućnost višestrukog odgovora. Na prvu stavku korištenje obnovljivih izvora energije ispitanici su označili sa 15,70%, za korištenje prirodnih materijala 18,20%, za smanjenje troškova tek 7,90%. Najviše ispitanika je označilo da im oznaka Eko kampa pri odabiru kampa predstavlja zaštitu okoliša i to 96,60%. Sigurnost je označena sa 15% te sistem kvalitetnog upravljanja sa 4,30%.



**Grafikon 3.** Struktura odgovora ispitanika vezanih o zadovoljstvu elementima u Eko kampu
**Izvor:** Obrada autora prema odgovorima iz anketnog istraživanja

## 5. ZAKLJUČAK

Sve veći broj kampista teži eko kampovima i eko kampiranju. Zato je za kampove bitno da svoj fokus stavljaju na kontinuirano ulaganje i da se koriste tehnologijama visoke održivosti kao što je solarna energija, sustavi za pročišćavanje vode i recikliranje otpada. Veliku važnost ima i umjerenost na održivosti sa minimalnim utjecajem na okoliš te čista i pametna energija, ekološki osviješteni smještaj i stvaranje podrške i suradnja sa lokalnom zajednicom. Iz anketnog upitnika može se izdvojiti par vrlo kvalitetno ocijenjenih sadržaja i ponude u eko kampovima. Na primjer veliki postotak zadovoljstva ima usluga na recepciji te znanje stranih jezika zaposlenika sa čak oko 88%. Također ponuda kao što je biciklistička ruta te izleti na kopnu visoko su ocijenjeni sa čak 99% i 100%, dok su ostale vrste izleta kao što su gledanje dupina, adrenalinski izleti ocijenjeni pozitivno i to sa oko 98%. Ova velika i kvalitetna ponuda u hrvatskim eko

kampovima privlači brojne kampiste te iz provedenog istraživanja je potvrđeno da se više od polovice kampista vraća te preporučuje posjet kampu drugima. To pokazuje koliko su turisti zadovoljni uslugom i koliko su usluga i doživljaj unutar kampa kvalitetni i to zahvaljujući dobroj organiziranosti i profesionalnosti zaposlenika. Ovim istraživanjem je prikazana pozitivna slika hrvatskih eko kampova te se uz njihov napredak i isticanje jasno se vidi kako daju svoj puni potencijal za što bolje, kvalitetnije i učinkovitije poslovanje kada se radi o zadovoljenju potreba gosta, održivosti poslovanja i očuvanju i brizi prema okolišu. Iako ovo istraživanje pruža korisne uvide treba istaknuti određena ograničenja koja treba uzeti u obzir pri interpretaciji rezultata. Ograničenja u istraživanju očituju se iz prvenstveno geografski je limitiranosti istraživanja jer su se u obzir uzeli samo obalni hrvatski kampovi što bi moglo utjecati na generaliziranost rezultata na razini države. Nadalje, odgovori ispitanika se temelje na subjektivnim stavovima što može unijeti pogreške ili nesigurnosti u prikupljene podatke. Naposljetku, razdoblje provedenog istraživanja može ograničiti mogućnost bilježenja sezonskih fluktuacija ili dugoročnih trendova. Vremenska ograničenja treba uzeti u obzir pri tumačenju rezultata, a buduća bi istraživanja mogla proširiti ovaj vremenski okvir na cijelu kalendarsku godinu i mogućih promjena tijekom duljeg vremenskog razdoblja.

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# Socijalne vrijednosti hrvatskog društva i legitimacija postsocijalističkog poretka
# The Social Values of the Croatian Society and the Legitimation of the Post-Socialist Legal Order

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**Sažetak:** *Socijalne vrijednosti dio su socijalnih politika koje su se razvijale pod utjecajem različitih čimbenika i povijesnih okolnosti. Od blagog nagovješta-ja socijalnih prava do socijalne države, rasle su i mijenjale se socijalne vrijed-nosti kao dio socijalnih politika koje su građanima trebale osigurati sigurnost. U socijalističkim je državama bio posebno razvijen sustav socijalnih prava, ali je on imao za svrhu osigurati stabilnost koja bi poslužila kao legitimacija so-cijalističke vlasti. Utoliko se socijalistički poreci razlikuju od socijalnih država koje su socijalne vrijednosti i njihovo ostvarenje ugradile u svoje pravne susta-ve kao sredstvo ostvarenja socijalnih vrijednosti i temeljnog pravnog načela socijalne pravde. U demokratskoj tranziciji bivše su socijalističke države nor-mativnu podlogu socijalne djelatnosti države ugradile u svoje ustavne doku-mente. Tako se i hrvatski ustavotvorac opredijelio za koncept socijalne države kao jedne od temeljnih odrednica samostalne i demokratske Republike Hrvat-ske te je, ugradivši socijalne vrijednosti u ustavni dokument, socijalnim pravi-ma priznao karakter subjektivnih ljudskih prava.*

**Abstract:** *Social values are a part of social policies that have developed un-der the influence of various factors and historical circumstances. From a slight hint of social rights to the welfare state, social values grew and changed as part of social policies that were supposed to ensure security for citizens. In so-cialist countries, a system of social rights was specially developed, and its pur-pose was to ensure stability that would legitimize socialist government. To that extent, socialist orders differ from welfare states that have incorporat-ed social values and their realization into their legal systems to realize social values and the fundamental legal principle of social justice. In the democrat-ic transition, former socialist states incorporated the normative basis for so-cial measures into their constitutional documents. In the same manner, the Croatian constitution maker opted for the concept of the social state as one of the fundamental determinants of the independent and democratic Republic of Croatia and, having incorporated social values into the constitutional doc-ument, recognized the character of subjective human rights as social rights.*

## 1. UVOD

Socijalna politika kao organizirana djelatnost države i drugih društvenih čimbenika polazi od so-cijalnih vrijednosti među kojima su solidarnost, jednakost, socijalna pravda, socijalna sigurnost i socijalna kohezija (za definiciju socijalne politike vidi Puljiz, 2006). Određujući se kao socijalne, države svojim zakonima osiguravaju građanima zadovoljenje socijalnih potreba uz promicanje so-cijalne kohezije i solidarnosti koje vode k socijalnoj sigurnosti. Pritom se put osiguranja socijalnih prava izgrađivao, zavisno od povijesnih datosti, različitom dinamikom i s različitim ciljevima. U socijalizmu, u kojem su socijalna prava bila dosta razvijena, služila su i kao određeni način kontro-le građana, odnosno legitimacijski argument vladajućoj nomenklaturi (Puljiz, 2001, str. 159–160).

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Socijalna prava, čiji je cilj osigurati socijalnu sigurnost, određeni stupanj obrazovanja te zdravstvenu zaštitu, dio su suvremenih liberalno-demokratskih ustava, a ideja distributivne pravednosti njihova je bitna komponenta. Naime, određena ekonomska preraspodjela nužna je u cilju osiguranja prava i dostojanstva svakog člana zajednice u okviru ustavnoga poretka. Suvremeni liberalni konstitucionalizam temelji se na načelima koje je iznjedrila Francuska revolucija, ali tek je od polovice 20. stoljeća stavljen naglasak na ekonomsku preraspodjelu. Francuska Deklaracija o pravima čovjeka i građanina iz 1789. godine (vidi *Déclaration des Droits de l'Homme et du Citoyen de 1789*) te ranija američka Deklaracija o nezavisnosti iz 1776. godine (vidi *Declaration of Independence: A Transcription*) isticale su kako su svi ljudi rođeni jednaki. Tako predsjednik *F. D. Roosevelt* u svojem drugom inauguracijskom govoru naglašava važnost sigurnosti i mira za traženje sreće, načela istaknutog u Deklaraciji o nezavisnosti (vidi *Second Inaugural Address of Franklin D. Roosevelt*). Prvi moderni europski Ustav iz 1791. godine u članku 1. navodi kako „svi građani imaju pravo na rad i zaposlenje bez ikakvih razlika osim vrlina i talenta" (*Constitution de 1791*). Deklaracija o pravima čovjeka i građanina iz 1793. godine otišla je korak dalje te je u članku 21. odredila javne pomoći kao svetu dužnost, a društvo obvezala na pomoć „nesretnim građanima, bilo da im pribavi posao, bilo da onima koji su nesposobni za rad osigura sredstva za izdržavanje" (Kurtović, 2005, str. 145). Navedena je odredba, između ostalih, označavala raskid sa starim režimom i u revolucionarnom duhu iskazala pravac kojim novi poredak namjerava ići u ostvarenju socijalnih prava.

Ipak, uskoro se pokazalo da raskid sa starim vremenima i težnje za promjenama podrazumijevanju prilagođavanje, djelomično uvažavanje prošloga i duže vremensko razdoblje za utvrđenje novih ustavnih načela poput prava na sigurnost kao jednog od prirodnih i neotuđivih prava. Prijelaz iz jednog sustava u drugi nije bio brz. Tek polovicom 20. stoljeća socijalna sigurnost je kao temeljno ljudsko pravo dobila svoj izraz u međunarodnim dokumentima, a njihovi su se potpisnici obvezali, uz gospodarske i kulturne, u svoje pravne poretke unijeti i odredbe o socijalnim pravima. Među njima su i pravo na socijalnu sigurnost, pravo na rad, pravo na odgoj i obrazovanje i dr. (za opisnu definiciju socijalne sigurnosti, a za koju sam autor napominje da bi ju protekom vremena trebalo nadograditi, vidi Puljiz, 2001, str. 157).

Republika Hrvatska je kao dio tadašnje socijalističke Jugoslavije od završetka Drugog svjetskog rata i Ustava Federativne Narodne Republike Jugoslavije iz 1946. godine slijedila socijalnu politiku federacije do njezina raspada, proglašenja samostalnosti te donošenja Ustava Republike Hrvatske iz 1990. godine (Jugoslavija je poslijeratnim Ustavom iz 1946. godine jamčila radnicima i namještenicima socijalno osiguranje. Neki izvori navode kako je Jugoslavija bila odana ideji socijalne države te kako su dijelovi koji su bili pod Austro-Ugarskom imali određene konture bismarckovskog sustava osiguranja koje su proširili 50-ih, vidi Stubbs, 2019, str. 36). Pritom je u međuvremenu, temeljem Ustava Socijalističke Federativne Republike Jugoslavije iz 1974. godine, došlo do decentralizacije i u tom području. Pusić (1996, str. 213) navodi da je socijalna država u istočnoeuropskim zemljama u vrijeme komunističkih režima u nekom smislu bila vraćanje na izvorni pokušaj utemeljena vlasti na miru i sigurnosti, pri čemu kao izvorni navodi primjer Njemačkog i Austro-Ugarskog carstva kojima je namjera bila svojim socijalnim programima osigurati mir i sigurnost podanika. Unatoč instrumentaliziranju socijalnih jamstava te nedostatku demokratskih i političkih prava, treba reći da se Hrvatska, kao i Jugoslavija, razlikovala od drugih socijalističkih sustava (drugi tip socijalizma, otvorenost, razmjena dobara i dr.). Njen je sustav socijalne sigurnosti bio „kombinacija jedne varijante bismarckovskog socijalnog osiguranja i socijalističkog državnog paternalizma" (Puljiz, 2001, str. 163).

## 2. SOCIJALNA POLITIKA I SIGURNOST U RAZDOBLJU SOCIJALIZMA I POSTSOCIJALIZMA

Nastanak nekog vida socijalne politike i pokušaj osiguranja socijalne sigurnosti seže još u stari vijek u kojem neki zakoni reguliraju pomoć najranjivijim pripadnicima društva koji se ne mogu brinuti za sebe, kao što su udovice, djeca i dr. Međutim, o socijalnoj politici i određenom obliku osiguranja socijalne sigurnosti aktima državne i lokalne vlasti može se govoriti tek od srednjeg vijeka i engleskog siromaškog prava (engl. *Poor Law*) usmjerenih na zaštitu prosjaka i siročadi (za povijesni razvoj siromaškog prava i njegove negativne implikacije u suvremenosti vidi npr. Novosel & Erent-Sunko, 2012; Erent-Sunko et al., 2022). No, zakoni koji su se odnosili na šire područje, poput zdravstvenog i mirovinskog, tek su oni koji su uslijedili za Bismarckovih reformi (vidi Puljiz, 1995). Potom su i druge države počele provoditi socijalne reforme te socijalnu sigurnost promicati i za druge, a ne samo zaposlene stanovnike. Intervencija države u područje socijalne politike imala je plodnije tlo u autoritarnim monarhijama i upravo su ondje uvedene prve socijalne mjere. U Sjedinjenim Američkim Državama i Australiji mali su se vlasnici usprotivili državnom socijalnom intervencionizmu (Puljiz, 1997, str. 117). Socijalna se politika u Europi pojačano razvija nakon Drugog svjetskog rata, zbog teških posljedica koje je izazvao (detaljniji pregled razvoja socijalne politike i socijalnih prava oduzeo bi previše mjesta i odvratio fokus s primarne teme rada, stoga valja uputiti na istraživanje o razvoju socijalne politike i socijalnih djelatnosti u Hrvatskoj u razdoblju od 1900. do 1960. godine koje je proveo Puljiz, 2006). U jednom dijelu Europe socijalna je politika dobila predznak socijalističke i nosit će ga gotovo do kraja 20. stoljeća kada dolazi do demokratskih promjena, odnosno tranzicije.

Kao što buržoaske revolucije nisu omogućile brz prijelaz u novo društvo, tako se i tranzicija iz socijalističkih u postsocijalistička demokratska društva nije mogla ostvariti preko noći. Socijalnu je politiku u razdoblju nakon Drugog svjetskog rata obilježio državni intervencionizam, a ocjena socijalnih politika tadašnjih zemalja socijalističkog pravnog kruga dvojaka je. Neka stajališta prema socijalnoj politici socijalističkog poretka su pozitivna i naglašavaju njene prednosti (visoke subvencije za stanove i hranu, punu zaposlenost, besplatnu zdravstvenu zaštitu i sl.). Druga su negativna i mogu se sažeti u mišljenju *J. Szalai* kako je socijalistička socijalna politika „iritirajuća, ponižavajuća, s mučnim i nepravednim iskustvima nezaštićenosti i kronične nestašice" (*cit.* prema Puljiz, 1994, str. 84). Zajedničko je obama gledištima da ne spore ulogu države koja raspolaže nacionalnim dohotkom i socijalnim statusima te ih dijeli prema kriteriju lojalnosti (Puljiz, 1994, str. 86). Socijalnu politiku, odnosno socijalne programe u istočnoeuropskim državama u vrijeme komunističkog režima može se opisati kao izraz dobrohotnosti države, odnosno vladajuće partije, usmjeren prema učvršćivanju poslušnosti i podređenosti građana (Pusić, 1996, str. 213, bilj. 29).

Težište socijalne politike u socijalističkoj Jugoslaviji bilo je dijelom na stanovništvu čija je socijalna sigurnost počivala na radnim pravima i pravima iz socijalnog osiguranja te kontroli cijena osnovnih prehrambenih namirnica, komunalnih usluga i energenata (Perišić & Vidojević, 2020, str. 168), a manjim dijelom na materijalno neosiguranom, odnosno siromašnom stanovništvu. Perišić i Vidojević (2020, str. 168) navode kako je u Jugoslaviji „materijalnu neobezb[ij]eđenost" bilo teško izmjeriti pa se siromaštvo predstavljalo kao marginalna, a „time i prihvatljiva pojava". Međutim, s početkom socijalnih problema 60-ih godina situacija se mijenja, da bi dvadesetak godina nakon toga (uslijed teške gospodarske i socijalne krize) temeljni sustavi socijalne sigurnosti došli u pitanje. Socijalna prava u takvoj situaciji više nisu mogla dati zadovoljavajuću legitimaciju za upravljanje (Puljiz, 2001, str. 160). Od 80-ih godina još su jače izraženi socijalni problemi i kriza, a na koje režim nije mogao odgovoriti (Vidović & Pauković, 2011,

str. 92). Društvo je krenulo novim smjerom, a time i razvoj socijalnih prava u okviru novog političkog poretka (pritom ne valja smetnuti s uma i globalizacijske trendove koji utječu na redefiniranje klasične koncepcije socijalne države, vidi Puljiz, 1998, kao i Kvartuč et al., 2021).

Neminovne posljedice raskidanja sa starim poretkom kod nekih su se država događale u ratnim uvjetima, što je posebice (uz potrebu prilagodbe sustava socijalne sigurnosti uvjetima tržišne privrede) izazvalo potrebu njihova ublažavanja. Puljiz (1994, str. 88) navodi kako se „socijalna politika u postsocijalističkim zemljama odvija između dva kontradiktorna sklopa akcija". Jedan od njih bio je „liječenje negativnih efekata transformacije društva" a drugi „napredovanje prema novoj shemi socijalne sigurnosti (…)". Među bivšim socijalističkim državama postojale su znatne razlike, a na njihove socijalne politike utjecali su mnogi i različiti čimbenici (među kojima zasigurno razvoj gospodarstva kao najznačajniji). Tako je, uz probleme koje je izazvala kriza 80-ih godina prošloga stoljeća, a koji su bili ostavština socijalističke federativne države, Republiku Hrvatsku pogodio Domovinski rat koji je, kao i svaki rat, izazvao niz socijalnih problema, ali i doveo do učvršćenja socijalne kohezije (u istraživanjima vezanim za čimbenike utjecaja na razvoj socijalne politike neizostavan je i ratni solidarizam, za kojeg se ističe kako se nastoji održati i nakon rata čime utječe i na jačanje socijalne države, Puljiz, 1997, str. 119). Tranzicija koja je uslijedila nakon pada socijalizma značila je uspostavu civilnog društva i promjenu vlasničke strukture, a uvođenje tržišta i privatizacija izazvali su opadanje standarda u postsocijalističkim državama i nezaposlenost koja se, zavisno od modela socijalne politike, rješavala na razne načine (vidi Puljiz, 1994, str. 86). Monopolističku ulogu države (iz ranijih razdoblja), kojoj su socijalna prava davala legitimitet za upravljanje, sve više zamjenjuju lokalne vlasti, organizacije civilnog društva, trgovačka društva i obitelj te se javlja novi model tzv. kombinirane socijalne politike (Bežovan, 2009, str. 357).

Unatoč takvim organizacijskim promjenama, socijalna država, socijalna zaštita i socijalna pravednost trajne su vrijednosti koje nadilaze vrijeme i pravno-političke sustave. Tako hrvatski Ustav iz 1990. godine određuje Republiku Hrvatsku kao socijalnu državu (članak 1. stavak 1.) te navedenu odredbu dopunjuje predanošću socijalnoj pravdi kao jednoj od temeljnih vrednota ustavnog poretka (članak 3.). Dodatno, u dijelu 3. Glave III. Ustava (*Zaštita ljudskih prava i temeljnih sloboda*), uz gospodarska i kulturna, konstitucionaliziran je i širok spektar socijalnih prava. Pritom su zakonskoj regulativi (izričito ili prešutno) prepušteni neki instituti koje Ustav ne konkretizira. Tako Rodin (1998) navodi da sadržaj koncepta socijalne države i načela socijalne pravde hrvatski Ustav unaprijed ne određuje već je konkretizacija tih načela ostavljena zakonodavcu koji je ograničen načelom socijalne države i socijalne pravde. Nadalje, ističe kako te granice određuje Ustavni sud. Neovisno o tome, ustavna socijalna prava predstavljaju temeljno opredjeljenje hrvatskog ustavotvorca, izraženo u ustavnom trenutku, prema uspostavi socijalno pravednog demokratskog poretka te i tom vrijednosnom kontekstu (uz normativni) socijalnih prava valja posvetiti pozornost.

## 3. SOCIJALNA PRAVDA U KONTEKSTU ASPIRACIJSKOG I AVERZIVNOG KONSTITUCIONALIZMA I JAMSTVO SOCIJALNE PRAVDE KAO SREDSTVO LEGITIMACIJE POSTSOCIJALISTIČKOGA PORETKA

Značaj ustavnoga trenutka, koji se kao rezultat povijesnih prilika ispoljava donošenjem ustava i s kojim otpočinje dugotrajan (i nerijetko mukotrpan) proces realizacije novouspostavljenoga poretka (Smerdel, 2013, str. 22–23), nikad se ne može u potpunosti odijeliti od povijesnog iskustva, tj. društvene i pravne tradicije pojedine državne zajednice. Svrha je novoga poretka neizbježno u (djelomičnom) prekidu sa starim praksama, ali i u otkrivanju vrijednosti koje će ispraviti i/ili obogatiti

njegove povijesne temelje. U tom smislu valja razumjeti tvrdnju kako „novi ustav ne raste poput graha iz povijesno i iskustveno predkonstruirane narodne tradicije, nego paradoksalno protiv nje kao njezina obnova *ex nihilo*" (Rodin, 2001, str. 83) što, dakako, ne znači da su tradicije i vrijednosti građana iščezle zajedno s odbačenim pravnim poretkom. Staničić (2022, str. 207) ističe da ustavni dokument treba razumjeti i kao svojevrsnu zbirku koja „konzervira i reflektira vrijednosti, ideale i simbole dijeljene u pojedinom društvu". Tako su tranzicijske zemlje nakon pada socijalizma na pragu posljednjeg desetljeća prošloga stoljeća postale dijelom tzv. ustavotvornoga eksperimenta. Pritom su „novostvoreni mješoviti ustavi uglavnom predstavljali 'amalgam' već poznatih modela", ali se i dalje osjećao snažan utjecaj tradicije komunitarističke ideologije. Ona je iziskivala visoku razinu državnog angažmana u uređenju socioekonomskih pitanja, a pojedinca (građanina) nije poimala autonomnim od zajednice. Stoga nije bilo realno „očekivati da konstitucionalizam u zemljama postsocijalističke tranzicije uzme čisti ili dominantni liberalni oblik" (Bačić, 2021, str. 33–34).

Na ovom je mjestu potrebno ukazati na aspiracijski i averzivni element ustavotvorstva. Aspiracijski konstitucionalizam (engl. *aspirational constitutionalism*) odnosi se na ustavotvorni proces u užem smislu (fazu izrade ustava), ali obuhvaća i njegove refleksije kroz kasniji postupak tumačenja. Aspiracijski je konstitucionalizam isključivo usmjeren na budućnost u smislu ciljeva i težnji koje se nastoje ostvariti te „definira državu, naciju, u smislu njezine budućnosti, njezinih ciljeva i njezinih snova" (Scheppele, 2003, str. 299). Nasuprot tome, averzivni je konstitucionalizam (engl. *aversive constitutionalism*) usmjeren unatrag, polazi od kritike prošlosti kroz razumijevanje načela i instituta koji su pošli po krivu, pri čemu se negativna ranija iskustva koriste pri izgradnji novoga ustavnoga poretka. U tom smislu „[a]verzivni konstitucionalizam identificira dublji smisao poznavanja sebe kroz svijest o tome što nisi; on inkorporira smisao izgradnje nacije kroz odbacivanje određene ustavne mogućnosti" (Scheppele, 2003, str. 300). Pritom se ne valja prepustiti teorijskoj lakoći striktnog odvajanja aspiracijskih i averzijskih konotacija ustavnoga izbora, s obzirom da nerijetko aspiracija prema određenoj viziji budućnosti zajednice u sebi sadrži averziju prema ranijim iskustvima i odbacivanje prošlih instituta i/ili načela. U tom je kontekstu potrebno istaknuti korjenitu povezanost socijalne i demokratske ustavne države kao temelja legitimacije suvremene Republike Hrvatske.

Pritom je, prije razmatranja aspiracijskih i averzivnih elemenata u pozadini procesa političke i ekonomske tranzicije iz socijalizma u demokraciju i tržišnu privredu, nužno potrebno naglasiti kako moderne ustavne države polaze od prava čovjeka (pojedinca) kao središnje točke izgradnje pravnoga poretka, „dok značenje, temeljna misao i cilj takvih poredaka postaje stvaranje adekvatnog socijalnog okruženja za potpun i slobodan razvoj svake pojedine osobe" (Barić & Vukas, 2021, str. 6). Hrvatski je ustavotvorac početkom posljednjeg desetljeća prošloga stoljeća bio itekako svjestan ostavštine socijalističkoga režima, koji je nerijetko bio spreman kršiti ljudska prava ne prihvaćajući zapadno liberalno-demokratsko shvaćanje njihove nepovredivosti (Barić & Vukas, 2021, str. 6). Stoga averzivni element konstitucionalizma valja tražiti upravo u konačnom i nedvosmislenom odbacivanju nedemokratske prošlosti koja je u ime drugih i važnijih interesa bila spremna kompromitirati i trivijalizirati ljudska prava. Simbolički početak tranzicije iz socijalističkoga u demokratski poredak Barić i Vukas (2020) pronalaze već u tzv. srpanjskim amandmanima donesenim 1990. godine (vidi Odluku o proglašenju Amandmana LXIV. do LXXV. na Ustav Socijalističke Republike Hrvatske), zajedno s tzv. veljačkim amandmanima iz iste godine (vidi Odluku o proglašenju Amandmana LIV do LXIII na Ustav Socijalističke Republike Hrvatske), na socijalistički republički Ustav te primjećuju kako oni utjelovljuju „važan načelni korak, no ujedno i još jednu potvrdu da promjena, posebno fundamentalne naravi, u sferi ustavnosti, počiva na dugotrajnom procesu društvene transformacije

i prihvaćanja novih uzusa. (…) Raspao se okvir, kalup, no tijesto društvenog bića nije moguće preoblikovati u kratkom razdoblju" (Barić & Vukas, 2020, str. 11).

U navedenom se ponajbolje ogleda slabost tzv. ekonomskog modela tranzicije koji počiva na pretpostavci da će pravne i političke promjene *eo ipso* dovesti do transformiranja ekonomskog i (šireg) društvenog konteksta (Peračković, 2004, str. 490), a takva vrsta normativnog optimizma imanentna je i teoriji tzv. ustavne revolucije (Smerdel, 2013b, str. 33). Naime, praktično ostvarenje određene doktrine u okviru političke zajednice dovodi do socijalizacije građana s njezinim vrijednostima i identifikacije s (u njezinu okviru razrađenom) koncepcijom dobra, uz odbacivanje njoj suprotnih i/ili stranih vrijednosti (Sunajko, 2010, str. 179). Napuštanjem socijalističke koncepcije državnog i društvenog poretka hrvatski su se građani suočili s potrebom drugačijeg shvaćanja vlastite zbilje, pri čemu se „[d]ruštvene vrijednosti, norme, obrasci ponašanja i sustavi mišljenja (…) mijenjaju znatno sporije od njima ekstrinzičnih događaja (…), pa bili to i prijelazi iz jednog društvenog konteksta u drugi" (Kvartuč & Kuzelj, 2021, str. 10). Stoga je razdoblje prijelaza iz socijalizma u demokraciju i tržišnu privredu uputno promatrati kroz leće teorije transformacije koja razlikuje procese tranzicije i transformacije, pri čemu se prvi poima kao prijelazno razdoblje između dvaju poredaka u kojem dolazi do definiranja normativnih ciljeva i uspostave institucionalnih pretpostavki funkcioniranju novoga sustava, dok se potonji shvaća kroz „promjene u socijalnom prostoru koje se pojavljuju kao posljedice primjene tih novih normi i zakona (bilo kao adaptacija na njih ili kao otpor)" (Peračković, 2004, str. 491).

S obzirom na nasljeđe socijalizma, u kojem su socijalne politike i jamstvo socijalne sigurnosti (u odsustvu političkog pluralizma, slobode medija i jamstva tradicionalnih liberalnih građanskih i političkih prava i sloboda) instrumentalizirani kao jedina legitimacijska osnova društvenoga i državnoga poretka (Kuzelj, 2019, str. 60), ne začuđuje činjenica preklapanja (socijalnih i liberalnih crta) identiteta hrvatskih građana. Kako ističe Puljiz (1992, str. 113), „[p]olitička se vlast legitimirala ekstenzivnim industrijskim razvojem, odnosno masovnim, nedovoljno produktivnim zapošljavanjem". Zrinščak (2003, str. 139) navodi kako se etapa socijalizma s pravom poistovjećuje sa socijalnim pravima i socijalnom sigurnošću te je upravo u širokom spektru osiguranja socijalnih prava moguće tražiti razlog relativno duge trajnosti socijalističkoga poretka. Niža razina ekonomskih nejednakosti u tom razdoblju jedan je od razloga zašto su „građani u postsocijalističkim zemljama osjetljiviji na bilo kakva povećanja nejednakosti", dok drugi proizlazi iz činjenice da su mehanizmi preraspodjele nužno vezani uz državno djelovanje, a „[g]rađani nekadašnjih socijalističkih zemalja iskazuju veće povjerenje u državu kao jamca minimalne sigurnosti i aktera redistribucije nego zapadne zemlje" (Šućur, 2021, str. 139). Zato, iako uspostava neovisne i demokratske republike predstavlja nedvojbenu aspiraciju hrvatskoga društva prema radikalnom zaokretu od dotadašnjeg uređenja, socijalne (egalitarne) vrijednosti prošloga režima nisu izbrisane iz njegove kolektivne svijesti te ono „poznaje kako liberalnu tako i socijalnu misao i može se reći da se identificira s elementima jedne i druge tradicije" (Sunajko, 2010, str. 181). Pritom takve (tek djelomično) suprotstavljene vrijednosti ne treba shvaćati u negativnom kontekstu, već je visoku razinu socijalnih vrijednosti, preostalu ili naslijeđenu iz socijalističkoga razdoblja, potrebno promatrati u kontekstu novootkrivenog pluralizma. Osobito s obzirom da je i u suvremenom političkom diskursu, a posebno na razini europskih država, itekako živa napetost između liberalno-kapitalističke koncepcije i ideje socijalne države blagostanja, a europski se građani poistovjećuju s objema (Sunajko, 2010, str. 180).

Stoga valja odbaciti teorijske pokušaje etiketiranja socijalnih (egalitarnih) vrijednosti nepoželjnima, kako je to (još u vrijeme socijalizma) pokušao učiniti Župan (1995, str. 160–184) konstruirajući teoriju tzv. egalitarnoga sindroma (za teorijsko preispitivanje teorije vidi Dolenec, 2014), a čije

su postojanje u suvremenom hrvatskom društvu pojedini autori kasnije pokušali provjeriti/dokazati (vidi Štulhofer & Burić, 2015; Burić & Štulhofer, 2016; Burić, 2017; Rimac et al., 2017; Vuković et al., 2017; Burić & Štulhofer, 2020; kritiku vidi u Dolenec & Širinić, 2018; Kvartuč & Kuzelj, 2021). Županov pritom „reducira i nezavisnu i zavisnu varijablu u temeljnoj hipotezi modernizacijske teorije: sindrom modernosti svodi na egalitarni sindrom, a društveni razvoj na tržišno društvo", dok autori kasnijih istraživanja, u nastojanju ispitivanja/potvrde postojanja egalitarnoga sindroma u hrvatskome društvu, kao skupa vrijednosti naslijeđenih iz socijalizma, navedenu teoriju „neopravdano proširuju na čitav katalog problema" (Dolenec & Širinić, 2018, str. 15). Iako ne treba čuditi porast interesa za Županovljevim tezama te njihova posljedična reafirmacija u procesu tranzicije iz samoupravnog socijalizma prema demokraciji i tržišnoj privredi (Dolenec, 2014, str. 58), valja istaknuti neprihvatljivim (i poprilično neobjektivnim) etiketiranje određenog skupa društvenih (tobože kolektivnih) vrijednosti (čije se postojanje pretpostavlja) sindromatskim, što implicira kako je nužno riječ o negativnim i bolesnim vrijednostima (Kvartuč & Kuzelj, 2021, str. 14).

Težnja za socijalnom sigurnošću ne predstavlja ostatak bolesnog tkiva raspalog bića prijašnjeg režima, već legitimne interese i aspiracije hrvatskih građana prema oblikovanju političke zajednice, odnosno slobodnom definiranju suvremene Republike Hrvatske i razvoju njezina društva. Takve težnje, djelomično potpomognute visokom razinom socijalnih prava u socijalističkom razdoblju, doista nemaju puno veze sa socijalizmom. Tako *M. Tripalo*, koji djelatnosti socijalne države veže uz ideju ostvarenja slobode i ljudskih prava te prepoznaje važnu ulogu solidarnosti u razvoju demokratskoga društva (Čepo, 2015, str. 282), u tekstu izvorno objavljenom 1992. godine napominje kako je „[i] sam Sv. Otac Papa (…) izjavio da socijalistički sistem ne može biti zamijenjen nekom vrstom divljeg kapitalizma, koji ne vodi računa o interesima radnika i siromašnih" (Tripalo, 2015, str. 374). Staničić (2022, str. 213) pak ističe vrijednosnu podudarnost socijalnog nauka katoličke crkve i ustavnog koncepta socijalne države.

Nasuprot ideološki nabijenoj i empirijski slabo provjerenoj tezi o prevladavajućem utjecaju egalitarnoga sindroma na modernizaciju hrvatskoga društva, „uputnije je govoriti o institucionalizaciji socijalne države i socijalne pravde te internalizaciji socijalnih vrijednosti u svijesti hrvatskih građana" (Kvartuč & Kuzelj, 2021, str. 24). Time se zahtjev za osiguranjem socijalne sigurnosti postavlja na razinu normativnih očekivanja koja, uz neprijeporan proceduralni element konstituiranja neovisne Republike Hrvatske izražen u slobodnim višestranačkim izborima i ustavotvornome procesu, doprinose legitimaciji novoga poretka. Naime, iako nedvojbeno važan, proceduralni legitimitet postsocijalističkoga poretka nije dovoljan, već je potreban niz drugih legitimacijskih elemenata, među kojima se ponajprije ističe jamstvo temeljnih ljudskih prava te oživotvorenje ideje pravne države koja zahtijeva da „je sadržaj pravnih normi u skladu s određenim sustavom vrijednosti i jamči duhovnu, političku i ekonomijsku slobodu svim građanima" (Blažević, 1995, str. 58). Pritom pod pojmom ekonomske slobode valja razumjeti ne samo slobodu tržišnog nadmetanja već i osiguranje od ekonomske nužde, čime se stvaraju preduvjeti za duhovni i politički razvoj ljudske osobe. Stoga je već na početku osamostaljenja Republike Hrvatske isticana problematičnost u ostvarenju tih daljnjih pretpostavki legitimacije novoga poretka te Blažević (1993, str. 22) u tom kontekstu posebno zabrinjavajućom navodi ekonomsku polarizaciju hrvatskoga društva početkom 90-ih godina 20. stoljeća, kada *de facto* dolazi do nestanka tzv. srednje klase (neophodne za funkcioniranje demokratskoga društva) i raslojavanja na neznatan sloj bogatih građana te širok spektar onih na rubu ili ispod praga egzistencije.

Iz toga proizlazi potreba promatranja ideje socijalne pravde kao jedne od temeljnih odrednica hrvatskoga ustavnoga poretka. Tako se već u stavku 3. Izvorišnih osnova hrvatskoga Ustava

ističe da Republika Hrvatska promiče ekonomski i kulturni napredak te socijalno blagostanje građana. Iz toga, kao i iz uspostave Republike Hrvatske kao demokratske i socijalne države (članak 1. stavak 1.), pri čemu se načelo socijalne pravde navodi kao jedna od najviših vrednota ustavnoga poretka (članak 3.), valja iščitati aspiracije hrvatskoga ustavotvorca prema uspostavi socijalno pravedne demokratske Republike. Na ovom mjestu treba ukazati na nedvojben ideološko-politički i programski karakter navedenih odredbi. Naime, nužno se složiti kako ustavna Preambula, Temeljne odredbe Ustava, a napose najviše vrednote ustavnoga poretka „doista jesu program. Politički, ideološki, pravni, ekonomski, socijalni … svejedno. I to kako za 'upravljače', tako i za 'upravljane' (…)" (Bačić, 1995, str. 90).

O moralnoj predanosti konceptu socijalne države te idealu socijalne pravde govori i činjenica potvrde njihove pripadnosti, kao sastavnica članka 1. i članka 3. Ustava, hrvatskom ustavnom identitetu u praksi Ustavnog suda Republike Hrvatske (Upozorenje br. U-VIIR-5292/2013 od 28. listopada 2013., para 3.). Time se predanost ideji osiguranja minimuma materijalnih mogućnosti za vođenje dostojnoga života iskazuje kao jedna od vječnih i nepromjenjivih vrijednosti hrvatskoga ustavnoga poretka koje su izuzete od raspolaganja demokratske većine (parlamentarne ili građana na ustavotvornom referendumu). Nadalje, Barić (2021, str. 196) ističe kako i cjelokupni koncept ljudskih prava tvori „osnovni sadržaj ustavnog identiteta", a o njegovoj dubokoj ukorijenjenosti u hrvatskome ustavnome poretku svjedoči i zapažanje da, dok se tekst Ustava iz 1990. godine u tolikoj mjeri promijenio „da je sadržajno danas na snazi bitno drukčiji Ustav (…) do danas nije izmijenjeno samo 27 ustavnih članaka, a od toga najveći dio odnosi se na poglavlje o zaštiti ljudskih prava i temeljnih sloboda" (Podolnjak, 2021, str. 203). Iz toga je također moguće zaključiti o organskoj povezanosti ljudskih prava te socijalne i demokratske ustavne države kao jedinog modela dosljedno predanog njihovu ostvarenju. U tom kontekstu valja dodatno naglasiti da „je ujedno socijalna država i demokraciji udahnula sadržaj, omogućavajući nadmetanje ideja i programa usmjerenih ostvarenju ustavne vizije cjelovitog koncepta ljudskih prava i socijalno pravednoga poretka, a ne tek negativno nadmetanje suzdržanošću u vršenju represivnih ovlasti aparata viktorijanske noćobdijske države" (Kuzelj, 2022, str. 66).

Ukorijenjenost socijalne države i pravde u srži hrvatskoga pravnoga poretka istovremeno je simbolička. Ustav Republike Hrvatske u članku 1. stavku 1. povezuje demokratsku i socijalnu državu u nerazdruživo jedinstvo, čineći konačan prekid sa socijalističkim razdobljem te postavljajući temelje uspostave i funkcioniranja slobodarske demokracije i socijalnog tržišnog gospodarstva. Pritom Ustavni sud i odredbu članka 49. stavka 1. Ustava, o poduzetničkoj i tržišnoj slobodi kao temelju gospodarskoga ustroja u Republici Hrvatskoj, identificira kao sastavnicu ustavnoga identiteta, ali uvijek sagledanu (i ograničenu) u odnosu na temeljne vrednote ustavnoga poretka iz članka 3. (Odluka br. U-VIIR-1158/2015 od 21. travnja 2015., para 43.1.). Iz toga valja zaključiti kako socijalno tržišno gospodarstvo predstavlja jedini prihvatljivi model odvijanja tržišnih odnosa u Republici Hrvatskoj (Kuzelj & Kvartuč, 2021, str. 501; Kuzelj & Horvat Vuković, 2022, str. 81–83).

Iz navedenoga je moguće izvesti zaključak da socijalna pravda kao temeljna odrednica koncepta socijalne države odgovara dvjema svrhama ustavnog ukorjenjivanja (engl. *constitutional entrenchment*), kako *R. Albert* naziva odredbe o nepromjenjivosti. Onoj koja je usmjerena na očuvanje strukturalne odrednice državnoga poretka te transformativnoj, koja stremi jamstvu širokog spektra prava dotad nepoznatih njegovu „ustavnom vokabularu" (Albert, 2010, str. 666–667). Nastojeći pretočiti visoku razinu socijalne sigurnosti, koja je u socijalističkom razdoblju

služila legitimiranju nedemokratskoga poretka, u vrednotu demokratske Republike, ustavotvorac postulira koncept socijalne države kao strukturalno obilježje suvremene Hrvatske. U tome do izražaja dolazi ukorjenjivanje usmjereno očuvanju (engl. *preservative entrenchment*) povijesne koncepcije države, okrenuto unatrag, ignorantno prema društvenim i političkim promjenama i zamrznuto u vremenu kao slika države u očima autora ustavnoga teksta (Albert, 2010, str. 678–679). Time se organizacijski aspekt socijalne države, kao ponajprije pragmatično jamstvo ekonomske sigurnosti građana u starome sustavu, prevodi u najvišu vrijednost novoga poretka, koja nadilazi organizacijsko obilježje države kao socijalne i prožima čitavu njezinu strukturu idealom socijalne pravde kao *svrhom*. Kako ističe Zakošek (1992, str. 105–106), liberalna je demokracija u nedvojbeno turbulentnom 20. stoljeću doživjela važne konceptualne promjene, na koje je svojim postojanjem utjecao socijalizam kao ideologija i binarna opozicija liberalizmu. To se, između ostaloga, očitovalo i u napuštanju minimalističkog poimanja države koja se transformira u socijalnu državu blagostanja.

S druge se strane ispoljava element transformacijskog ukorjenjivanja (engl. *transformational entrenchment*) koje, nastojeći ispraviti ranije pogreške, okreće glavu od prošlosti te prikazuje novu viziju države i građana u pokušaju usmjeravanja i oblikovanja neizvjesne budućnosti, a upravo donošenje ili proširenje kataloga ljudskih prava služi kao najbolji primjer takvih aspiracija (2010, str. 685). Tako Smerdel (2013b, str. 28) ističe da ustavna revolucija 1990. godine označava početak procesa korjenite transformacije socijalističkih poredaka prema „političkom pluralizmu, poštivanju i promociji sloboda i prava te izgradnji institucija koje osiguravaju vladavinu prava". Upravo uvođenjem, u ranijoj tradiciji nepoznatih i neafirmiranih, građanskih i političkih prava u ustavnopravni diskurs Republike Hrvatske, ustavotvorac pomiruje socijalnu sigurnost, kao normativno očekivanje dijelom naslijeđeno iz socijalizma, s jamstvom klasičnih liberalnih prava i sloboda te potvrđuje njihovu organsku povezanost, međuovisnost i nerazdvojivost. U prilog značaja socijalnih prava kao normativnog očekivanja hrvatskih građana govori istraživanje stavova birača u predizbornom razdoblju 1992. godine, iz kojih proizlazi da „na ljestvici prioritetnih problema u Hrvatskoj građani na prvo mjesto stavljaju socijalne probleme. Tako su na prvom mjestu socijalna pravda i sigurnost (…) a na drugome mjestu suzbijanje nezaposlenosti (…)" (Sunajko, 2010, str. 184). Stoga su, iako naizgled oprečna, oba opisana modela ukorjenjivanja prisutna u Republici Hrvatskoj koja odbacuje totalitarne okove, ali istovremeno čuva socijalne vrijednosti koje su građani ponijeli iz starog u novi i slobodniji poredak. U tom je smislu očuvanje strukturalnog obilježja države kao socijalne nadopunjeno aspiracijama prema ostvarenju ljudskih prava kao jedinstvenog pojma iz kojeg je jedino na teorijskoj razini dopušteno izdvajati pojedina jamstva – bila ona građanska, politička ili socijalna, u naravi su isključivo ljudska (vidi Kuzelj & Petričušić, 2022).

U knjizi znakovita imena (*Hrvatska: Zadatosti i usmjerenja*), u izdanju Hrvatske akademije znanosti i umjetnosti, Puljiz (1992, str. 112) ističe kako je ustavnim opredjeljenjem Republike Hrvatske konceptu socijalne države „osnovna odluka o usmjerenosti naše socijalne politike donijeta", a „[u] doglednoj budućnosti, usporedo s porastom nacionalnog bogatstva i razine standarda stanovništva, mijenjat će se i osnova na kojoj je dosada počivala socijalna politika, tj. stalna zaposlenost. Umjesto toga, etablirat će se osnovna socijalna prava koja proizlaze iz građanskog statusa" (Puljiz, 1992, str. 116). Iz navedenoga je razvidno kako temelj hrvatske socijalne politike, iako se nadovezuje na tradiciju socijalne sigurnosti socijalističkoga razdoblja, nije izvorno socijalistički. Suprotno, socijalna država koncipirana je na dijelom preuzetim normativnim očekivanjima, ali je ujedno neodvojivo povezana uz funkcioniranje ustavne demokracije.

## 4. ZAKLJUČAK

Republika Hrvatska početkom posljednjeg desetljeća 20. stoljeća suočila se s korjenitom promjenom svojeg društveno-političkoga i pravnoga sustava. Takav proces političke i ekonomske tranzicije (koji se značajnim dijelom odvijao u ratnim okolnostima) valja promatrati kao naglašeno emocionalno razdoblje. U tom smislu ni sam ustavni trenutak kao početak procesa izgradnje ustavnoga poretka ne valja promatrati s isključivo racionalnog stajališta, zanemarujući pritom sentimente građana kao dijela percipiranog ustavotvornog naroda. Tako i *A. Sajó* ističe da ustavi ne mogu dokinuti sentimente, niti im je to namjera. Naime, ustavno pravo nije usmjereno negaciji, već „*manipulaciji* sentimenata. Ono nudi mehanizme snižavanja strasti koje ugrožavaju ustavni poredak" te su „[k]olektivni politički sentimenti odlučujući pri ustavnom dizajnu" (Sajó, 2006, str. 6). Nadalje, ističe kako „[t]emeljna prava nude drugu ilustraciju povezanosti između ustavnih institucija i moralnih sentimenata. Prava je teško dokinuti kad naiđu na [širok, *op. a*.] društveni odjek" te u tom smislu pretpostavlja utjecaj društvene empatije na suvremene uspjehe zahtjeva za ostvarenjem socioekonomskih prava (Sajó, 2006, str. 7). „S obzirom na te sentimente, postaje teško napadati socijalne politike. Prihvaćanje protu-socijalnih razloga mora nadići osobni emocionalni otpor" (Sajó, 2006, str. 8).

Kroz proces konstitucionalizacije društveni sentimenti prevode se u normativna očekivanja građana te se u najboljem slučaju novouspostavljeni ustavni poredak podudara s ustavnim očekivanjima građana, omogućavajući društvenu identifikaciju s poustavljenim vrijednostima. Iako društvene vrijednosti i emocije gdjekad izravno utječu na ustavotvorni proces, nerijetko se ustavne odluke donose na temelju „pretpostavki o trenutnim sentimentima te također sadrže i pretpostavke o emocijama koje će ustavni dizajn generirati". Velik dio ustavnih odabira „dizajniran je da *predvidi, anticipira* i *nosi se* s onim što pisci [ustava, *op. a*.] ili suci poimaju kao društvene sentimente" (Sajó, 2006, str. 9). S time na umu valja promatrati značaj socijalnih vrijednosti u pozadini suvremenih ustavnih poredaka. Tako i u kontekstu Republike Hrvatske raskid sa socijalističkom nedemokratskom prošlošću ne valja poistovjetiti s odbacivanjem socijalnih vrijednosti hrvatskoga društva. Jednako se tako ni socijalna prava ne veže za određene oblike državnih i društvenih poredaka, već ona imaju svoj pravnopovijesni razvoj i obličje, za čije konačno definiranje ostaje mjesta u skladu s razvojem svijesti o ulozi državne i društvene zajednice u suzbijanju socijalnih nejednakosti te osiguranju dostojanstva i jednakosti njezinih građana. Stoga društvenu ukorijenjenost socijalnih vrijednosti valja smatrati moralnim sentimentom hrvatskih građana koji je dobio svoju normativnu potvrdu u ustavotvornome postupku kroz konstitucionalizaciju koncepta socijalne države i načela socijalne pravde te široke palete socijalnih prava. Tako ustavno načelo socijalne pravde „valja istovremeno razumjeti kao racionalni izbor hrvatskoga ustavotvorca kojim obvezuje političku vlast na realizaciju, a (ustavno)sudsku na protekciju socijalnih prava koja emaniraju iz temeljnoga dokumenta te, ujedno, kao izraz emocionalnog naboja hrvatskih građana koji u ustavnom trenutku *sebi* daju Ustav" (Kuzelj, 2023, str. 13).

S obzirom na *supra* iznesena razmatranja, moguće je zaključiti kako iz ustavno-identitetskog značaja koncepta socijalne države i načela socijalne pravde kao vječnih i nepromjenjivih vrijednosti hrvatskoga Ustava valja izvoditi dvojak odnos prema prošlosti te jedinstven, ali stupnjevan odnos prema budućnosti. U odnosu na prošlost, averzivni element konstitucionalizma proizlazi iz odbacivanja nedemokratske prošlosti, ali se iz prijašnjeg razdoblja preuzimaju socijalne vrijednosti kao (sada tek jedna od mnogih) osnova legitimacije državnoga poretka te ih se ukorjenjuje u temeljnoj (vječnoj) strukturi Ustava kroz klauzulu socijalne države i jamstvo socijalne pravde. S druge strane, valja prepoznati aspiracijski element ustavotvorstva koji proizlazi

iz težnje k ostvarenju najšireg spektra ljudskih prava (uključujući socijalna). Drugi (viši) stupanj aspiracijskoga konstitucionalizma ogleda se kroz transformacijsko ukorjenjivanje najvažnijih odrednica buduće hrvatske države, a pritom je najvažnije prepoznavanje instrumentalne povezanosti demokratske i socijalne države te njihovo prožimanje najvišim vrednotama Ustava kao vječnim vodiljama Republike Hrvatske prema političkom, ekonomskom, socijalnom, kulturnom i duhovnom samoostvarenju njezinih građana.

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# Pravci istraživanja sadržaja načela socijalne države u hrvatskoj pravnoj znanosti – pregled literature
# Research Directions of the Content of the Principles of the Welfare State in Croatian Legal Science – Literature Review

Leonardo Mikac[1]  ID

**Sažetak:** *Model socijalne države je ostvarivan kroz osiguravanje socijalne zaštite građana i ispravljanje socijalnih nepravdi koje nastaju zbog djelovanja slobodnog ili nereguliranog tržišta. U Hrvatskoj, pregledom relevantne domaće literature, uočeno je kako se tek pojedini pravni istraživači bave sadržajem načela socijalne države, pravde i socijalnih prava u Hrvatskoj. Ovaj rad nastoji što detaljnije analizirati ulogu socijalnih prava u pravnom sustavu Hrvatske te njihov odraz u hrvatskoj pravnoj literaturi. Konsenzus autora postignut je u prepoznavanju činjenice da se ekonomskim interesima ugrožava potreba ostvarenja socijalne pravde kao jednog od državnih interesa prepoznatih na razini najviših vrednota hrvatskog ustavnopravnog poretka. Autori ističu značaj porezne politike u ostvarenju socijalnih ciljeva države i upozoravaju da redovite zakonske izmjene u sustavu oporezivanja dovode do narušavanja socijalne pravednosti. Pravni sadržaj načela socijalne države i pravde, kao i načela oporezivanja, se povezuje s međunarodnim protokom kapitala i utjecajem multinacionalnih korporacija. Autori naglašavaju važnost učenja iz stranog ustavnopravnog iskustva kako bi se ojačala uloga sudstva u zaštiti socijalnih ustavnih jamstava.*

**Abstract:** *The model of the welfare state ensures citizens' social protection and addresses social injustices resulting from the workings of a free or unregulated market. In Croatia, few legal researchers investigate the principles of the welfare state, justice, and social rights. This paper aims to analyze the role of social rights in Croatia's legal system and their reflection on Croatian legal literature. The authors agree that economic interests jeopardize the need for social justice, a fundamental state interest recognized at the highest level of Croatian constitutional values. They emphasize the significance of tax policy in achieving the state's social goals and warn against frequent legislative changes in the taxation system, which undermine social justice. The legal content of welfare state principles, justice, and taxation is linked to the international flow of capital and the influence of multinational corporations. The authors stress the importance of learning from foreign constitutional law experiences to strengthen the judiciary's role in protecting social constitutional guarantees.*

## 1. UVOD

Ustav Republike Hrvatske iz 1990. godine određuje ju i kao socijalnu, ali koncept socijalne države i načelo socijalne pravde i danas, trideset i nešto godina kasnije, ostaje na marginama interesa hrvatskih pravnih istraživača. Takvo stanje hrvatske pravne znanosti zabrinjava, imajući u vidu činjenicu da „[k]ao ustavna vrednota većine suvremenih poredaka socijalna država predstavlja temeljnu i trajnu opredijeljenost ustavotvoraca k ostvarenju socijalne pravednosti, dok kao institucionalizirana vrijednost građana svoje ozbiljenje pronalazi u demokratskom zahtjevu, postavljenom pred nositelje vlasti, na uspostavljanje socijalno pravednoga poretka" (Kuzelj, 2019, str. 64).

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Tako se, uz udžbeničku literaturu koja se socijalnom državom i pravdom bavi s gledišta socijalne politike općenito (Puljiz et al., 2005), odnosno u hrvatskom kontekstu (Bežovan et al., 2019), ovom temom na cjelovit način bave samo dvije knjige: zbornik radova *Socijalna prava kao temeljna ljudska prava* koju su uredile Bodiroga-Vukobrat i Barić (2010) te nedavno objavljena znanstvena monografija Kuzelja sa suradnicima *Socijalna država kao temeljna vrijednost suvremene Republike Hrvatske* (Kuzelj et al., 2023).

Predanost socijalnim pravima, koja su u prethodnom socijalističkom razdoblju bila relativno dobro razvijena i pritom služila legitimiranju nedemokratskoga poretka, našla je svoje mjesto i u novom demokratskom poretku kao temeljna i trajna vrijednost neovisne Republike Hrvatske (Kuzelj et al., 2024). Interes pravnih istraživača za pravni sadržaj socijalne države i pravde u neovisnoj Hrvatskoj probuđen je relativno kasno (gotovo desetljeće od usvajanja prvog demokratskog Ustava iz 1990. godine), povodom Odluke Ustavnog suda Republike Hrvatske u predmetu br. U-I-283/1997. od 12. svibnja 1998. Potaknut navedenom Odlukom, Rodin (1998) se upustio u razmatranje uloge Ustavnog suda u odnosu na ustavni koncept socijalne države i načelo socijalne pravde. Tako zaključuje da „Ustav unaprijed ne određuje sadržaj koncepta socijalne države (čl. 1.) i načela socijalne pravde (čl. 3.). Konkretizacija tih načela ostavljena je zakonodavcu, a ne sudbenoj niti ustavno-sudbenoj vlasti. Međutim, zakonodavac je u svojoj konkretizaciji ograničen načelom socijalne države i socijalne pravde, a te granice određuje Ustavni sud" (Rodin, 1998, str. 116). Potom, više od pola desetljeća kasnije u jednom od ponajboljih radova na temu socijalnih prava u hrvatskoj pravnoj literaturi, Bačić (2005) daje opsežan pregled razvoja i uloge socijalnih prava u društvenom i pravnom poretku.

Kasnija istraživanja mjesta socijalnih prava u Republici Hrvatskoj potaknuta su Odlukom i Rješenjem Ustavnog suda u predmetu br. 3820/2009 i dr. od 17. studenoga 2009. o tzv. *kriznom porezu* (vidi npr. Bačić, 2013; Cindori & Kuzelj, 2018; Miloš & Kuzelj, 2021). U tom predmetu Ustavni sud najdetaljnije ulazi u razmatranje odnosa socijalnih prava i demokracije te ustavnih načela oporezivanja. Zato je prikladno sadržaj socijalne države proučavati zajedno sa zahtjevima koje postavljaju socijalno-politička porezna načela iz članka 51. Ustava.

S obzirom na navedeno, u ovom radu će se prikazati istraživanje sadržaja socijalne države i pravde, kao i socijalnih prava u hrvatskoj pravnoj literaturi. Također, razmotrit će se i institucionalna uloga Ustavnog suda u zaštiti socijalnih prava.

## 2. PROUČAVANJE SADRŽAJA SOCIJALNE DRŽAVE I PRAVDE TE SOCIJALNIH PRAVA

Temeljem pregleda dostupne literature može se uvidjeti kako većina autora ukazuje na kompleksnost i važnost socijalnih prava u kontekstu socijalne države, izazove s kojima se susreću u tranzicijskim periodima, i potrebu za njihovom konstitucionalizacijom i adekvatnom zaštitom (Bačić, 2005, 2013; Kuzelj, 2022a; Kuzelj et al., 2023). Dio autora također ističu različite perspektive i potencijalne putove za reafirmaciju i jačanje socijalnih prava i socijalne pravde u suvremenim društvenim i ekonomskim uvjetima (Kuzelj, 2019; Kvartuč et al., 2021; Kvartuč, 2021). Model socijalne države odražava se jamstvom države u osiguranju političke, pravne, ekonomske i, ponajprije, socijalne sigurnosti te ispravljanjem socijalnih nepravdi u društvu. Koncept socijalne države je u funkciji ostvarenja načela socijalne pravde i socijalnih prava koja čine temelj pravednog i ravnopravnog društva. Dok se načelo socijalne pravde odnosi na ravnopravnu i poštenu raspodjelu resursa i mogućnosti u društvu, socijalna prava ne odražavaju se samo u odgovornosti države prema građanima

(omogućiti pristup socijalnim uslugama kao što su pravo na rad, obrazovanje, zdravstveno osiguranje), već služe i kao sredstvo unaprjeđenja općeg životnog standarda u društvu (Jelušić, 2010). Erent-Sunko et al. (2022) kroz svoj rad (na primjeru kažnjavanja prosjačenja i skitnje) objašnjavaju zašto je stigmatizacija i penaliziranje siromašnih (poput prosjaka i skitnica) relikt prošlih, nedemokratskih vremena, ističući kako takve prakse nisu prihvatljive u suvremenim demokratskim i socijalnim ustavnim državama. Naglašavaju potrebu za zaštitom dostojanstva siromašnih osoba, ukazujući na ustavni koncept socijalne države i načelo socijalne pravde kao temelje za osiguranje minimuma egzistencije. Time stavljaju naglasak na pozitivne obaveze države u osiguranju socijalne sigurnosti i zaštite ljudskih prava, ukazujući na potrebu reforme zakonodavstva koje bi odrazilo ove vrednote. Kuzelj (2022a) naglašava kako su socijalna prava ključna komponenta suvremene ustavne države i kako predstavljaju izraz normativnog konstitucionalizma. On navodi da socijalna prava ne bi trebala biti tretirana kao manje važna ili sekundarna u odnosu na klasična liberalna (građanska i politička) prava. Često se navodi kako socijalna prava često zahtijevaju alokaciju resursa i stoga su povezana s proračunskom materijom, što ne bi trebalo biti opravdanje za njihovu marginalizaciju ili isključenje iz mogućnosti ustavnosudske zaštite, odnosno trebalo bi biti suprotno, odluke o socijalnim pravima trebale bi biti podvrgnute snažnoj raspravi i javnom nadzoru (vidi npr. Barić & Miloš, 2016, str. 142). Tako Kuzelj (2022a, str. 61) ističe da „kvantitativno razlikovanje dviju kategorija ljudskih prava, za razliku od kvalitativnog, ne narušava njihovu jednaku normativnu osnovu. S tog su gledišta ona jednakovrijedna, a isključivanje mogućnosti sudske zaštite s osnove njihova upliva u državni proračun neprihvatljivo je jer se time propis zakonskog ranga (državni proračun) izdiže ponad vrijednosne strukture temeljnog dokumenta (ustava)“.

Suštinski dio socijalne države čini i oporezivanje, jer se država oslanja na financiranje od poreza za pružanje socijalnih usluga, ali treba imati na umu da „unatoč sličnostima, između porezne i socijalne države ne stoji znak jednakosti. Iako je svaka socijalna država, kao suprotnost minimalističkoj liberalnoj te socijalističkoj netržišnoj državi, *ipso facto* predominantno financirana porezima, o dizajnu poreznog sustava u cjelini ovisit će je li porezna država ujedno i socijalna“ (Kuzelj, 2019, str. 67). Ta dihotomija posebno može doći do izražaja u vremenu gospodarske ili financijske krize, kada države mogu uvesti dodatne porezne mjere, poznatije kao krizni porezi, kojima se nastoji osigurati kontinuitet socijalnih mjera, ali krizno oporezivanje istovremeno postaje kontroverzno u uvjetima ekonomske krize, kad se država nalazi između potrebe za akumulacijom sredstava za socijalnu sigurnost i općeg neodobravanja javnosti prema novim poreznim oblicima (vidi npr. Bačić, 2013; Cindori & Kuzelj, 2018). U uvjetima ekonomske krize, država se našla suočena s potrebom za akumulacijom sredstava za održavanje socijalne sigurnosti i pritiskom javnosti koja se opirala uvođenju novih poreznih tereta, što je stavilo socijalna prava u direktan odnos s financijskim kapacitetom države da ih održi na dotadašnjoj razini (Cindori & Kuzelj, 2019).

U suvremenom kontekstu oporezivanja u demokratskim i socijalnim državama naglašena je potreba za poštivanjem dostojanstva poreznih obveznika, a glavni način postizanja toga je izuzimanje osnovnog egzistencijalnog minimuma iz porezne osnovice te ograničavanje ukupnog poreznog tereta unutar razumnih granica (Kuzelj, 2020). Kuzelj et al. (2022) navode kako progresivni porezni sustav, osvjetljava ključnu ulogu fiskalne politike u izgradnji i održavanju socijalne države. Javne usluge poput obrazovanja, zdravstva, infrastrukture i socijalne zaštite temelj su socijalne države, osnovne usluge svim građanima bez obzira na njihovu ekonomsku moć. Progresivno oporezivanje dohotka, gdje porezna stopa raste s povećanjem dohotka, nije samo financijski instrument, već i alat socijalne politike koji odražava težnju društva ka većoj jednakosti i pravednosti. Također, isti autori navode kako porezni sustav, posebno onaj koji se odnosi na oporezivanje dohotka, može i treba odražavati i promicati socijalne vrijednosti kroz pravednost i redistribuciju te da takav sustav

prepoznaje da su oporezivanje sukladno sposobnosti za plaćanje (ekonomskoj snazi) i socijalna odgovornost bogatijih slojeva društva ključni za redistribuciju bogatstva i financiranje javnih dobara i usluga koje koriste svi članovi društva. Time se dolazi do zaključka da porezna politika može biti alat za postizanje veće socijalne pravednosti unutar društva. Odnosno, porezni sustav trebao bi osigurati da svatko doprinosi prema svojim mogućnostima, a da se resursi raspoređuju na način koji podržava one u najvećoj potrebi. Redistribucija preko poreznog sustava tako može pomoći u smanjenju ekonomskih i socijalnih razlika unutar društva (Kuzelj & Kvartuč, 2021).

Financijske konotacije socijalnih prava otvaraju niz povezanih pitanja, od mogućnosti referendumskog odlučivanja o njima, do uloge (ustavnog) suda. Odgovori na ta pitanja leže u kompleksnom odnosu između ekonomske politike, pravne zaštite socijalnih prava i demokratskog sudjelovanja. Upravo Kuzelj (2022c, str. 343) ističe da su iz referendumskog odlučivanja najčešće izuzeta područja koja su u svezi s temeljnim državnim funkcijama, poput proračunskih i poreznih pitanja, te da se takva zabrana referenduma (na temelju povezanosti s proračunom) može „pokazati nužnom upravo radi zaštite financijskih preduvjeta ostvarenju socijalnih zadaća". Nadalje, aktivistički pristup sudstva u zaštiti socijalnih prava može dovesti do značajnih financijskih implikacija za državni proračun, ali i za širu ekonomsku politiku. Prilagođavanje između ekonomske efikasnosti i socijalne pravde te između fiskalne discipline i socijalnih potreba, postalo je glavni izazov za suvremenu državu u kontekstu globalnih ekonomskih promjena. U tom smislu Kuzelj (2022a, str. 74-79) temeljem iskustva iz prakse kolumbijskog Ustavnog suda nastoji pronaći „smjernice za povlačenje granice do koje sudski aktivizam smije ići, prije nego se pretvori u politizaciju ustavnog sudstva i sredstvo ostvarenja političkih aspiracija ustavnih sudaca". Kušan i Petrović (2018) ističu poduzetničku i tržišnu slobodu kao ustavni temelj gospodarskog ustroja Hrvatske te ukazuju na činjenicu kako potencijalne napetosti između gospodarskih sloboda i socijalne pravde (sugerirajući da financijske konotacije ovih ustavnih jamstava) mogu imati izrazite implikacije na socijalnu pravdu i ekonomsku politiku. Kuzelj i Kvartuč (2021, str. 500) ističu kako uspostava demokratskog ustavnog poretka 1990. godine označava ključnu promjenu za ekonomsku strukturu Hrvatske, pri čemu navode važnost socijalnog tržišnog gospodarstva, uz naglašenu važnost poduzetničke i tržišne slobode, kao „jedinog prihvatljivog ekonomskog modela u suvremenoj hrvatskoj državi".

Jedno od najvažnijih djela na ovom području bavi se izazovima s kojima su se socijalna prava suočavala tijekom tranzicijskog razdoblja (Bačić, 2005). Demontaža socijalističkog sustava, odnosno međudjelovanje političkih, ekonomskih i društvenih čimbenika duboko je utjecalo na slabljenje socijalnih prava te Bačić ističe potrebu rekonstrukcije socijalnih prava u cilju postizanja pravednijeg društva, odnosno socijalne pravde. Isto tako, on ukazuje kako su „upravljači postkomunističkih *novih demokracija* smatrali da je duboka reforma postojećih sustava socijalne zaštite neodvojiv element transformacije u postkomunističkim novim demokracijama" (Bačić, 2013, str. 192). Tako i Cindori i Kuzelj (2019) raspravljaju o reafirmaciji vrijednosti kroz redefiniciju sadržaja socijalne države, s naglaskom na skandinavski model socijalne politike kao ideal. Dodatno, oni naglašavaju potrebu za jačanjem poreznog kapaciteta i uvažavanjem ustavnih načela oporezivanja kao sredstva za ostvarivanje aktivne socijalne države.

## 3. RAZMATRANJE INSTITUCIONALNE ULOGE USTAVNOG SUDA U ZAŠTITI SOCIJALNIH PRAVA

Kako bi se ukazalo na složenost uloge Ustavnog suda u zaštiti socijalnih prava, autori (Rodin, 1998; Bačić, 2005; Kuzelj, 2022a, 2022b) ističu potrebu za njegovom proaktivnom i principijelnom intervencijom kako bi se osigurala socijalna pravda u različitim kontekstima tranzicijskih društava i

novih demokracija. Bačić (2005, 2013) navodi kako se socijalna prava, unatoč njihovoj konstitucionalizaciji, suočavaju s izazovima u novim demokracijama, posebice nakon pada socijalizma. U oba rada argumentira kako su tranzicija i ekonomske reforme dovele do slabljenja socijalne zaštite, implicirajući da bi Ustavni sud trebao imati učinkovitiju ulogu u zaštiti socijalnih prava. Nadalje, ukazuje na potrebu za jačanjem institucionalnog okvira koji može obraniti socijalna prava od ekonomskih i političkih pritisaka. Cindori i Kuzelj (2018, 2019) naglašavaju kako bi u kontekstu institucionalne uloge Ustavnog suda, sam Sud trebao imati važnu ulogu u ocjenjivanju kako porezno zakonodavstvo utječe na socijalna prava i pravednost, osiguravajući time da fiskalne mjere ne dovode do nepravednih socijalnih posljedica. Miloš i Kuzelj (2021) ističu kako je uloga suvremenog ustavnog sudstva, osim što nadmašuje tradicionalno učenje gdje je ono doživljeno kao tzv. „negativni zakonodavac", dopunjena ovlastima davanja smjernica zakonodavcu kako postupati pri budućem uređenju određene materije te zaključuju kako suzdržanost Ustavnog suda Republike Hrvatske na području socijalnih prava, a naročito vezano na fiskalno i porezno zakonodavstvo, upućuje na dobrovoljnu pasivnost prema političkim granama vlasti. Kuzelj et al. (2021, str. 68) ističu da Ustavni sud Republike Hrvatske u isto vrijeme „mora voditi računa o opasnostima pretjeranog samoograničavanja. Osobito s obzirom na to da je njegova uloga u zaštiti ljudskih prava apostrofirana činjenicom što je jedino tijelo ovlašteno odrediti granice državnih ovlasti radi zaštite prava i pravnih načela te time političke odluke podvesti pod pravne zahtjeve, zadržavajući se pritom na ocjeni ustavnosti i ostajući neutralan prema odabranim politikama zakonodavca koje se kreću unutar ustavnih granica".

Gotovac (2022) se fokusira na dilemu rada nedjeljom, istražujući kako radno pravo i prakse utječu na socijalna prava radnika. Argumentira ulogu Ustavnog suda u interpretaciji i zaštiti prava radnika, sugerirajući da sud treba osigurati uravnoteženost između ekonomskih interesa i prava radnika, posebice u kontekstu prava na odmor i pravedne naknade. S druge strane, Kuzelj et al. (2024) argumentira kroz više točaka, od paternalizma i arbitrarnosti zakonodavne vlasti, višestruke diskriminacije, nedostatka prikladnosti, nelogičnosti u ustavnosudskoj argumentaciji, ali i otvorenosti ustavnosudske većine prema ograničenju ekonomskih sloboda, da mjera ograničenja poduzetničkih sloboda (zabrana rada nedjeljom) nije smjela proći test ustavnosti. Analizom ranije sudske prakse, koju je obradio Kuzelj (2023b), a koju je Ustavni sud kasnije napustio, ukazivala je na dosljedno pridržavanje ustavnopravnih načela i prava posebno u kontekstu zaštite ekonomskih sloboda i prava radnika, u skladu s načelom razmjernosti. Odluke donesene u prethodnim slučajevima naglašavale su važnost ravnoteže između interesa radnika, poduzetnika i šire društvene zajednice, dok su istovremeno preispitivale legitimnost ciljeva i mjera koje bi ograničavale rad nedjeljom.

Kušan i Petrović (2018) kritiziraju Ustavni sud zbog prečeste uporabe prava na pravično suđenje kao osnove za odlučivanje u slučajevima koji se odnose na poduzetničku slobodu, tržišne slobode i pravo vlasništva, umjesto temeljitije analize prigovora s obzirom na druge relevantne ustavne odredbe. Navode kako bi Ustavni sud trebao uzeti u obzir i druge ustavne vrijednosti te aktivnije sudjelovati u tumačenju tih prava kako bi se osigurala veća zaštita ustavnih prava u zakonodavnom postupku. Iz navedenog se vidi kompleksnost i važnost uloge Ustavnog suda u balansiranju između ekonomskih interesa, radničkih prava i socijalne pravde. Nadalje, Kuzelj i Kvartuč (2021) te Kuzelj i Horvat Vuković (2022) ističu važnost konteksta socijalne pravde u interpretaciji ustavnih sloboda, ukazujući na potrebu za očuvanjem tih vrijednosti u suvremenom društvu. Time se otvara prostor za dublje istraživanje uloge Ustavnog suda u zaštiti socijalnih prava i očuvanju ustavnih vrijednosti.

Kuzelj i Kvartuč (2021) analiziraju ustavnu podlogu mjera socijalne sigurnosti u Hrvatskoj i pri tome naglašavaju 1) važnost poreznog sustava u ostvarenju socijalne pravde (ističu potrebu za progresivnim poreznim sustavom kao sredstvom za ispravljanje nejednakosti), te 2) važnost prava vlasništva i

slobode poduzetništva te naglašavaju kako se te slobode ne smiju izolirano promatrati, već u kontekstu socijalne pravde i jednakosti. Kuzelj i Horvat Vuković (2022) ističu kako hrvatski Ustav odražava predanost socijalnoj pravdi i socijalnoj državi, smatrajući ih dijelom ustavnog identiteta i europskih vrijednosti. Oni naglašavaju važnost očuvanja tih vrijednosti u kontekstu europskih integracija jer zaštita socijalne ukorijenjenosti Ustava doprinosi izgradnji socijalno pravedne Europe. Zaključno, razmatranja institucionalne uloge Ustavnog suda u zaštiti socijalnih prava otkrivaju složenu dinamiku i izazove s kojima se suočava suvremeno ustavno sudstvo, naglašavajući potrebu za proaktivnom intervencijom suda kako bi se osigurala socijalna pravda i očuvanje ustavnih vrijednosti u tranzicijskim društvima i novim demokracijama.

## 4. ZAKLJUČAK

Preko trideset godina nakon usvajanja prvog demokratskog Ustava, koncept socijalne države i načelo socijalne pravde još uvijek se bore za svoje mjesto u okviru pravne znanosti i prakse u Hrvatskoj. Iako su socijalna prava bila temelj i legitimacija prethodnog socijalističkog poretka, njihova istinska afirmacija u demokratskom kontekstu dolazi kasno, i to uz poticaj određenih odluka Ustavnog suda. Te odluke, poput one o kriznom porezu, naglašavaju duboku povezanost socijalnih prava s demokracijom i socijalno pravednim oporezivanjem, ukazujući na neizostavnu ulogu Ustavnog suda u konkretizaciji i zaštiti tih prava (iako odluka u konkretnom slučaju ne predstavlja afirmaciju socijalne pravde vidi Bačić, 2013; Cindori & Kuzelj, 2018). Predanost socijalnoj pravdi, kako kroz pravnu teoriju tako i kroz ustavnosudsku praksu, ključna je za ostvarenje temeljnih vrijednosti na kojima počiva suvremena Republika Hrvatska.

Rodinova (1998) i Bačićeva (2005) razmatranja pružaju temelj za razumijevanje da zakonodavne i sudbene vlasti moraju djelovati unutar okvira postavljenih socijalnih načela Ustava, pritom naglašavajući odgovornost zakonodavca u konkretizaciji tih načela, dok je Ustavni sud krajnji arbitar njihovih granica. Dok s druge strane, Kuzelj (2023a) ističe važnu ulogu ustavnog suda i drugih sudova u ostvarivanju socijalnih prava. Navodi kako se socijalna prava promatraju kao nedovoljno ostvariva ili čak izvan dosega sudske zaštite zbog njihove povezanosti s državnim proračunom, ali smatra da je takav stav neprihvatljiv jer socijalna prava impliciraju barem minimalnu mogućnost zaštite od neprimjerenih zadiranja. Dodatno, Kuzelj (2022b) posebno naglašava važnost učenja iz prakse drugih ustavnih sudova u zaštiti socijalnih prava, osobito njemačkog Saveznog ustavnog suda, a s ciljem jačanja zaštite socijalnih prava u Hrvatskoj.

Temeljem uvida u radove u ovom radu spomenutih autora, ističe se važnost kontinuiranog i dubokog proučavanja sadržaja socijalne države, pravde, i socijalnih prava ne samo s ustavnog gledišta, nego i u kontekstu financijskih politika i poreznih načela te se potvrđuje nužnost razumijevanja institucionalne uloge Ustavnog suda u zaštiti tih prava. Takvo proučavanje i razumijevanje krucijalni su za daljnji razvoj socijalne države u Hrvatskoj, koja se mora odvijati u duhu demokracije i uz neprestano osiguranje socijalne pravde, kao temeljnih stupova suvremenog pravnog poretka.

Posebno treba istaknuti potrebu aktivnijeg proučavanja socijalnih prava na pojedinačnoj razini. Većina navedenih istraživanja bavila se općenitim proučavanjem uloge socijalnih prava (kao podskupine ljudskih prava) i ulogom ustavnog suda u njihovoj zaštiti. Na pojedinačnoj razini, najviše je istraživanja posvećeno ustavnim načelima oporezivanja, dok su druga prava dijelom zapostavljena. Tako je samo nekoliko pravnih istraživača detaljnije povezivalo pravo na zdravlje, koje je jedno od ključnih socijalnih prava. Pravom na zdravlje u kontekstu povijesnog

razvoja njegove konstitucionalizacije bavili su se Javorić Barić i Kuzelj (2022), a Nedić (2022) ističe kako temeljni uvjeti za dostojanstven život pojedinca ovise upravo o ostvarivanju prava na zdravlje te da država mora osigurati uvjete za zdravo okruženje. Dodatno, Nedić (2020, str. 52) navodi da je pravo na zdravlje ono „koje se ne odnosi isključivo na pojedinca i njegovo pravo da bude 'zdrav' (individualno pravo), nego i pravo koje se odnosi na cijelu skupinu ljudi (kolektivno pravo), na način da se kolektivu omogući zdrav život, zdrava okolina (okoliš), održiv razvoj i drugo". Međutim, kako se radi o danas sve važnijem segmentu socijalnih prava za nadati se kako će se u budućnosti posvetiti više pažnje istraživanju u području prava na zdravlje, čime bi se omogućilo bolje razumijevanje o izazovima s kojima se pojedinci susreću u ostvarivanju ovog prava.

Evidentan je nedostatak istraživanja u području zdravstva, koji je jedan od ključnih segmenata socijalne politike i pružanja socijalnih prava građanima. Proučavanje zdravstva u kontekstu socijalne države može obuhvatiti istraživanje financiranja zdravstvenog sustava, pristupa zdravstvenim uslugama, kvaliteta usluga, uloge države u osiguravanju zdravstvene zaštite, kao i potencijalne pravne izazove i sukobe koji se mogu pojaviti u tom kontekstu. Posebice je to vidljivo u kontekstu zaštite prava na zdravstvenu zaštitu manjinskih skupina, poput suzbijanja diskriminacije transrodnih osoba u okviru zdravstvenog sustava prilikom procesa ostvarenja temeljnog prava na samoodređenje (o tome vidi Mikac, 2022). Stoga, za nadati se je da će se u budućnosti posvetiti više pažnje istraživanju u području zdravstva kako bi se bolje razumjeli izazovi i prilike koje se javljaju u ovom ključnom segmentu socijalne uloge države.

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