Third International Scientific Conference
on Economics and Management

EMAN 2019

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SELECTED PAPERS

Association of Economists and Managers of the Balkans
UdEkoM Balkan

3rd INTERNATIONAL SCIENTIFIC CONFERENCE
EMAN 2019

EMAN 2019 – Economics & Management: How to Cope With Disrupted Times

SELECTED PAPERS

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PREFACE

Association of Economists and Managers of the Balkans headquartered in Belgrade – Serbia, Faculty of Management Koper – Koper, Slovenia; DOBA Business School - Maribor, Slovenia; Integrated Business Faculty - Skopje, Macedonia and Faculty of Management - Zajecar, Serbia organized Third International Scientific Conference on Economics and Management: How to Cope With Disrupted Times - EMAN 2019 in Ljubljana on March 28, 2019 at the Hotel M.

Third International Scientific Conference on Economics and Management - EMAN - aimed to establish and expand international contacts and co-operation across regions and countries. The main purpose of the conference was to provide scientists an encouraging and stimulating environment in which they may present results of their research to the scientific community and general public.

The conference theme was discussed in following sections:

1. Economics,
2. Management,
3. Law,
4. Tourism,
5. Environment,
6. Technology.

The aim of this year's conference has been achieved - bring together the academic community of the Balkans region and other countries and publication of their papers with the purpose of popularization of science and their personal and collective affirmation. The unique program combined presentation of the latest scientific developments in these areas, interactive discussions and other forms of interpersonal exchange of experiences.

The conference was opened by **Prof. dr Rasto Ovin**, Dean of the DOBA Business School – Maribor, Slovenia and a member of the Scientific Committee of the conference; **Uroš Mirčević**, President of the Association of Economists and Managers of the Balkans and **Prof. dr Tatjana Horvat** representative of the Faculty of Management Koper, University of Primorska, Slovenia.

Within publications from EMAN 2019 conference:

- **25 double peer reviewed papers** have been published in the *EMAN 2019 – Economics & Management: How to Cope with Disrupted Times - Selected Papers – The 3rd Conference on Economics and Management,*
- **87 double peer reviewed papers** have been published in the *EMAN 2019 Conference Proceedings – Economics & Management: How to Cope With Disrupted Times* and
- **63 abstracts** have been published in the *EMAN 2019 Book of Abstracts.*

EMAN 2019 publications have more than **1.000 pages**. Besides that, **57 papers** have been accepted for publication in the conference partner journals also, namely:

1. **Managing Global Transitions (MGT)** is a quarterly, scholarly journal published by the University of Primorska, Faculty of Management (Slovenia). Journal covers diverse aspects of transitions and welcomes research on change and innovation in increasingly digitalized and networked economic environments, from a societal, organizational, and technological perspective. MGT fosters the exchange of ideas, experience and knowledge among developed and developing countries with different cultural, organizational and technological traditions. The Journal is officially listed in EconLit, International Bibliography of the Social Sciences, Directory of Open Access Journals, Erih Plus, IBZ Online, EconPapers, Cabell's Directory of Publishing Opportunities, EBSCO and ProQuest.

2. **Management: Journal of Sustainable Business and Management Solutions in Emerging Economies** is a diverse journal with a wide range of management disciplines. It is published in three issues per year (May, September, and December). PDF of papers is freely available online. The University of Belgrade is publishing the Journal since 1996. It has the highest national rank (M24 – 4 points) and currently is indexed/ranked/abstracted in EBSCO, DOAJ, Google Scholar, MIT library, CEEOL, UTS library, Periodicos CAPES, National Library of Serbia Digital Repozitory, Serbian Citation Index and Ulrich Periodicals.

3. **Management** is an open access peer-reviewed international journal published by the Faculty of Management Koper, University Primorska (Slovenia) since 2005. It is indexed/listed in Erih Plus, Directory of Open Access Journals, EconPapers and EBSCO. The journal Management is intended for managers, researchers, students and scholars, who develop skills and put into practice knowledge on organisation management. The journal integrates practitioners', behavioural and legal aspects of management. It is dedicated to publishing articles on activities and issues within organisations, their structure and resources.

4. **The Facta Universitatis, Series: Economics and Organization (FU Econ Org)** is an open access peer-reviewed international journal published by the University of Niš (Republic of Serbia). FU Econ Org has been published since 1993. The journal has high national rank in Serbia (M51 – 3 points) and currently, it is being indexed in DOAJ, ERIH PLUS - European Reference Index for the Humanities and Social Sciences, Index Copernicus International, CEEOL, EconBiz, SCIndex (Serbian Citation Index), CiteFactor,

OAJI - Open Academic Journals Index, DRJI - Directory of Research Journals Indexing, JournalTOCs, EZB - Die Elektronische Zeitschriftenbibliothek, Google Scholar, BASE - Bielefeld Academic Search Engine, ROAD - Directory of Open Access scholarly Resources, SUNCAT and INFOBASE INDEX (India).

5. **Journal of Innovative Business and Management** is referred in international scientific journal bases DOAJ, EconPapers, ResearchGate and RePec. It has been published since 2009 and since then it has been attracting more and more interest among the readers, who predominantly come from academia and business practice.

6. **Journal of Sustainable Development (JSD)** is an international journal published by the Integrated Business Faculty – Skopje, Macedonia. JSD area includes three pillars of economic, social and environmental development issues. All these aspects are considered relevant for publishing in the JSD. The Journal is officially listed in the respected EBSCO database, CEEOL database, as well as the databases of Business Source Complete and Sustainability Reference Center. All articles published in the Journal are also indexed in these databases.

7. **Our Economy: Journal of Contemporary Issues in Economics and Business (JCIEB)** is an international open access, peer reviewed, and scientific journal, published continuously since 1954 by University of Maribor, Faculty of Economics and Business (Slovenia). At present, the journal is indexed/listed in EconLit, EBSCO, DOAJ, ProQuest, RePEc and numerous other databases.

8. **Balkans Journal of Emerging Trends in Social Sciences (Balkans JETSS)** - new scientific journal, published by the Association of Economists and Managers of the Balkans. Aims and scope are economics, management, law and tourism. After publication of first issues of the journal, Balkans JETSS will be submitted for indexation in all relevant scientific databases: SCOPUS, EBSCO, DOAJ, Google Scholar, etc.

1. Albania
2. Austria
3. Bosnia and Herzegovina
4. Bulgaria
5. Croatia
6. Czech Republic
7. Greece
8. Hungary
9. India
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11. Italy
12. Montenegro
13. North Macedonia
14. Poland
15. Romania
16. Russia
17. Serbia
18. Slovakia
19. Spain
20. Sultanate of Oman
21. Taiwan
22. Turkey
23. UAE
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Participation in the conference took **373 researchers with the paper** representing:

- 24 different countries,
- 93 different universities,
- 63 eminent faculties,
- 10 scientific institutes,
- 27 colleges,
- Various ministries, local governments, public and private enterprises, multinational companies, associations, etc.

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THE RELATIONSHIP BETWEEN INTEGRATION OF TECHNOLOGY - INCREASE CUSTOMER SPENDING - CUSTOMER SATISFACTION: MONKEY MODEL

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Abstract: *The purpose of this paper is to determine a link between the integration of technology/technological solutions/applications in the hotel business and guest satisfaction on the one hand, and the integration of technology/technological solutions/applications in the hotel business and stimulation of guest consumption during their stay in the hotel on the other hand. The aim is to examine and identify key elements of the MONKEY model, which will accomplish the purpose of this paper. In this study the survey method was used. The research instrument was a structured questionnaire consisting of three parts: (1) integration of technology, (2) guest consumption and (3) quest satisfaction. The questionnaires were distributed to hotel managers and domestic and international hotel guests on the Opatija Riviera (Croatia). The results of empirical research and analysis form the basis for further modification of the MONKEY model which can directly be used for creating a policy of integrating technology in the hotel business and increasing guest consumption during their stay at the hotel as well as increasing their satisfaction during and after their stay at the hotel. The scientific contribution of the paper is reflected in the authors' presentation of their own MONKEY behavioral model for the analysis of technology integration/technological solutions/applications in the hotel business viewed through the prism of the semantic approach. In this paper the authors present their views and the results of their own empirical research. The results of this research can be useful for hotel managers in order to contribute to improving the quality of the hotel offer and thus respond to the modern demands of the tourism market.*

Keywords: *hotel, information technology, customer consumption, customer satisfaction, semantics, MONKEY model*

1. INTRODUCTION

The development of technology in many ways determines business concepts and business processes (both simple and complex) on all levels and in all departments of the hotel business as a business entity [1]. For a successful business (according to the principles of sustainable development) a new technology must be properly integrated into the hotel's operations. But regardless of the aspiration of hotels to achieve greater profit, the focus of hotel business must always remain on the customer - satisfied customer. Some questions remain: How can specific business processes be improved according to the level of technological development? How can guest consumption in certain hotel departments be stimulated? How can guest satisfaction with the integration of technological solutions be improved? How can technology contribute to guests spending more money during their stay in a hotel (and how to stimulate

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them to do so)? The responses to these questions offer solutions which can modify the way in which technology is integrated in hotel businesses while keeping in mind the global semantic paradigm of technological development.

Due to these questions, the purpose of this paper is to examine the connection between integration of IT solutions in the hotel business and quest satisfaction. Furthermore, the purpose is to investigate a link between integration of IT solutions in the hotel business and stimulation of guest consumption during their stay in the hotel. The aim is to examine and identify key points of the MONKEY model, which will be used to present the philosophy and factor logic of integrating ICT solutions towards increasing the hotel profit while also increasing guest and employee satisfaction at the same time [2].

The paper is divided into five sections. Following the introduction, the second part explains the importance of integration of technology in the hotel business. Then, the MONKEY model is conceptualized. The fourth section explains the research methodology and interpretation of the research results. The conclusion provides a synthesis of the entire paper.

2. INTEGRATION OF TECHNOLOGY AND HOTEL BUSINESS

Consumer satisfaction is a fundamental marketing concept [3], [4], [5], [6], [7]. It is considered to be one of the most important outcomes of all marketing activities in market-oriented firm. It is imperative for hotels to tailor hotel services to the changing needs of guests, with a view to increasing customer satisfaction and retention. In order to increase customer satisfaction using different IT solutions, hotel can elevate the competitive advantage. The hospitality industry has been transformed from a traditional hands-on, low-tech, locally based industry into a global industry that effectively utilizes technology to combine high-touch and high-tech - to the benefit of customers, employees, and firms [8]. Hotel guests and the tourism market are becoming more and more demanding each day. On the other hand, the competition is getting increasingly severe. When buying a product or hotel service guests want to get value for money. Recently, researchers have argued that there is a distinction between customer satisfaction as related to tangible products and as related to service experiences. This distinction is due to the inherent intangibility and perishes ability of services, as well as the inability to separate production and consumption [9]. Nowadays, more and more attention is being given to quality. Hotel competency in service quality has a significant impact on the level of guest satisfaction with service [10]. According to Total Quality Management (TQM), business quality is a precondition for the successful business of every hotel whose management always focuses on profit. Also, many researchers have focused on TQM as a means of achieving and then managing customer satisfaction [10]. Furthermore, TQM states that continuous monitoring of the development of technology and improving business activities of the hotel by integrating modern technological accomplishments and business concepts based on the use of technology is the reflection of a modern approach to accomplishing the plans and strategic goals of the hotel.

By using technology in promotional and other action-directed activities the aim is to:

- Show the guest that technology (technological solutions) can be used in an easy way and that because of this they will have a certain benefit,
- Use technology to objectively and truthfully show guests what the hotel offers,
- Encourage the guest to undertake certain actions,

- Convince the guest of the quality of the product and services, i.e. that "for each dollar paid they will receive the full value",
- Present products and services in a way that will convince the guest that what is listed in a specific offer is precisely what they need and want at that moment,
- Create a positive "image" for the product and hotel services,
- Encourage the potential consumer of a certain service or product to take action and to make the decision to consume a certain product or service.

By using technology, the offer and promotion of specific products and services due to its content, graphical solutions and design creates a picture of the hotel, as well as an "image" which already exists or which it is aiming to create. Of course, it is crucial that this first impression/encounter with the technology that is used is positive, since at that point in time the guest either gains or loses trust, gains or loses desire and decides whether or not to use IT solutions [11]. In this context, IT solutions can be called self-service technology (SST) facilities. SST facilities are where consumers/guests deliver services themselves through the use of technology [12]. If their first impression is bad, it is highly likely that the guest will not be encouraged to take "action" and they will opt not to use IT solutions/SST to book or purchase what they are being offered and they will search for a better solution. However, positive evaluations of IT solution/SST may tie consumers into relationships with hotels [4].

Therefore, regardless whether profit is the main objective of hotel business, when considering integrating technology in order to improve certain business processes we need to keep in mind that:

- By using technology certain business processes in hotels can be performed better and faster,
- Hotel employees performing these processes are satisfied (and not frustrated),
- Guests are satisfied with the technology at their disposal,
- Technology integration pays off (analyses and measurements necessary),
- Guests are encouraged to take "action".

While keeping all this in mind, the following question has to be asked: how does integrating certain ICT solutions in hotel business (emphasis on ICT solutions with direct or indirect contact/interaction with guests) make it possible to earn as much money as possible? That is to say, between many different business policies and paradigms in hotel business the answer to this question is very simple and is as follows. Namely, the integration of ICT-based solutions or business concepts (this paper places emphasis on in-house promotional activities) should directly contribute to: (1) bringing more guests to the hotel (direct influence on the average occupancy of the hotel) and/or (2) stimulating or increasing guest consumption during their stay in the hotel (ICT solutions should facilitate guest spending and that while the guests are spending their money they feel content, happy, fulfilled, etc.).

The answer is seemingly logical, simple and even easily implemented. However, bearing in mind the different kinds, specifics and purposes of hotels, their surroundings and guest profiles this entire issue gains additional parameters which call for a significantly broader research.

If the issue is investigated with regard to the first answer then the focus lies more with the global activities of the hotel and hotel sales channels that deal with market placement, SEO (Search Engine Optimization), syntactic and semantic analyses of websites, internet activities, actions on Google, social media and other channels, etc. [13]. The technologies that impact guest satisfaction may be used in advertising campaigns to attract new customers [14]. This paper focuses

on analyzing the question "How can ICT stimulate and increase guest consumption during their stay at the hotel, while ensuring that guests feel satisfied, happy, fulfilled while spending money?" Hotels often utilize technology as a value-added amenity to help promote differentiation and enhance guest satisfaction [14]. In the long term, profit is not the only measure of a successful business. In fact, if:

- A hotel is doing well in terms of profit,
- Every hotel employee is satisfied and performing to the maximum of their abilities,
- Guests are satisfied during their stay,
- Guests are satisfied even after they spend more money than planned at the hotel (which has to be influenced by the new ICT integration-based business philosophy) and
- After leaving the hotel the guests post good comments on online media (websites, booking.com, Expedia, etc.),

then hotel management can believe in the long-term survival of their hotel on the increasingly demanding market.

3. MONKEY MODEL

In the context of this paper and the analysis of the issue of accepting a business concept according to the principles of the semantic paradigm as a precondition for success, emphasis is placed on the time, type of action and the content of in-house promotional activities. In fact, content is what the supply (the hotel) offers, and the demand (the guest) wants. The question is – how can the supply always know what and when the demand wants and constantly adjust itself, e.g. how can specific types of offer constantly be adjusted and changed. The MONKEY model (MONKEY – Model of New KEY for earning money) got its name for several reasons. A monkey is a cheerful, dynamic animal always jumping around, playing, laughing a lot (happiness, enjoyment), it is agile, always looking for something and curious. It is the animal that resembles man the most. The last three letters in the word monkey represent the word KEY. The overall association with the word monkey indicates, in this context, satisfaction, joy, something dynamic that holds the key. Therefore, the MONKEY model introduces a dynamic model representing the complexity of relationships between hotel employees, ICT business solutions and hotel guests.

By integrating ICT solutions, the aim is to stimulate and increase guest consumption during their stay in the hotel by ensuring that while the guests spend their money they are satisfied, happy and fulfilled. Similar to a monkey jumping around on branches (being dynamic), the hotel offer should also be dynamic. The syntagmatic relationship lies in the fact that a certain ICT solution used to convey information to guests should convey a certain information to a precise group of guests in a precisely defined way, at a precise time of day (syntagm: the monkey pours honey which is sweet and sticky, i.e. you easily stick to it). The MONKEY model as a logical base and philosophy for the functioning of ICT solutions basically represents a model that constantly monitors the guest, analyzes their behavior (semantic analysis), provides them with information (pours honey before them), stimulates consumption and thus makes money. The Figure 1 displays how the MONKEY model functions.

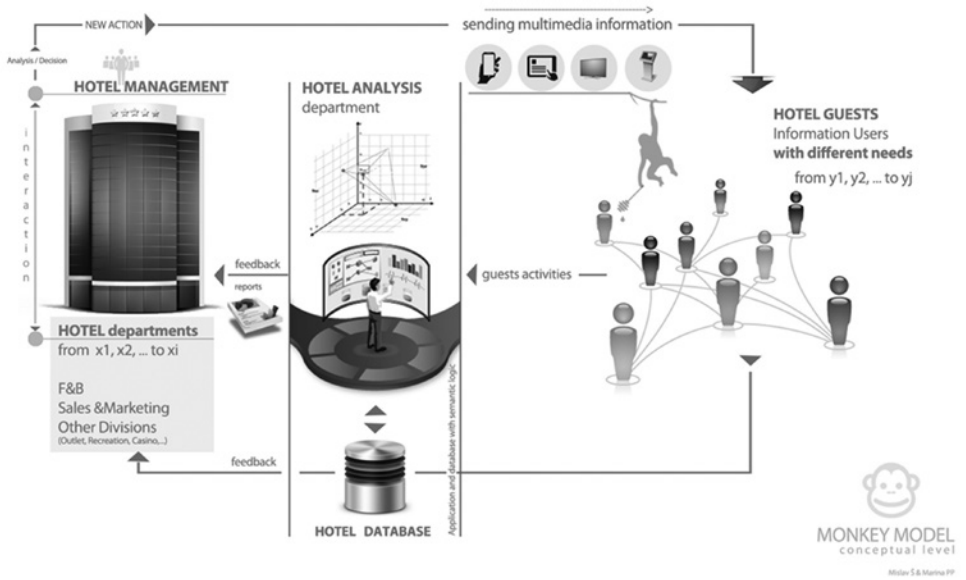

Figure 1: MONKEY model. Source: Authors

$$S_{xy} = \sum_{X=1}^{i} x + \sum_{y=1}^{j} y \tag{1}$$

$\sum_{X=1}^{i} x$ - total supply/promotional activities by all hotel departments

$\sum_{y=1}^{j} y$ - guest needs and wishes based on data from the data base (loyalty program) + searching services analysis + consuming the services (semantic analysis)

S_{xy} - promotional activities of the hotel

Bearing in mind the differences between individual hotels, they can also have different structures for departments. Departments with the dominant possibility for stimulating guest consumption have a direct link and access to the application in order to send information to guests. Considering the data entered for guest characteristics, the semantic analysis monitors guest activities during their stay in the hotel. Following the semantic analysis and the conclusions arising from it guests receive only the information that will be most interesting for them [1].

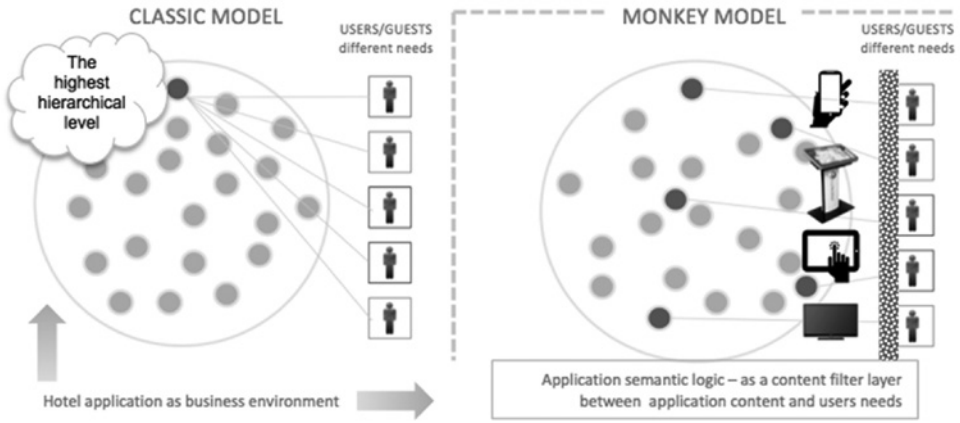

Figure 2: Conceptual comparison of distributing information to guests: classic model (static model) vs MONKEY model (dynamic model). Source: Authors

The Figure 2 shows the conceptual comparison between the classic model and the MONKEY model of distributing information to potential consumers. Hotel departments use their "campaigns" (which aim to stimulate the sales of their products or services) to offer different types of information to their consumers. Potential consumers are different and do not want to consume the same products or services at the same moment. Therefore, a semantic analysis needs to be conducted which will, based on previously gathered guest data and while monitoring their current activities, make it possible to satisfy their needs in real time. These are the fundamental advantages and crucial positive moments emphasized by the MONKEY model. What does this mean in actual business?

For the purposes of monitoring the usage of the application for in-house multimedia informing of hotel guests regarding the regular and special offer of the hotel, the authors have been working on the development of a multidimensional model which would make it more efficient and easier to understand, define, monitor and interpret individual hotel promotional activities in a multidimensional space, while at the same time measuring them by weighting individual elements within the model [1].

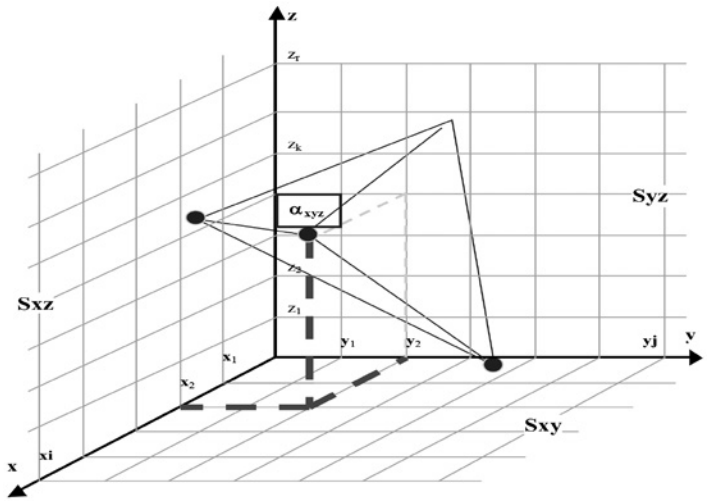

Figure 3: A depiction of the element analysis model of the hotel application in a multidimensional system. Source: Authors

Where:

- x – individual elements/promotional action of the hotel (hotel department)
- y – information from guests search database (wishes, needs, suggestions, questions)
- z – weights of some promotional actions/hotel offers created on the basis of x and y analysis
- α_{xyz} – the weighted value of the promotional action created on the basis of x, y, z
- Sxy – xy plane: a depiction of the promotional actions of the hotel and the needs/wishes of guests in the real system
- Sxz – xz plane: a depiction of the value/weight of the promotional actions of the hotel's real system
- Syz – yz plane: a depiction of the value/weight of wishes and needs of guests in the real system

Within the depicted multidimensional model, organized data sets for different quantitative qualitative (semantic) analyses can be monitored in the individual columns, lines and planes. The set of all characteristics of hotel promotional activities for all monitored offers (data – information, promotional activities, devices, functions, etc.) and values is defined by points αxyz, of the xyz-prism and the expression:

$$S=\{\alpha_{xyz}\} \quad \begin{matrix} x=1,2,3,\ldots,i \\ y=1,2,3,\ldots,j \\ z=1,2,3,\ldots,r \end{matrix}$$

This kind of approach makes it possible to describe and analyze all existing uses and measurements of the hotel application for placing the hotel offer with the purpose of stimulating the hotel's in-house guest consumption during their stay in the hotel.

4. EMPIRICAL RESEARCH

In this study the survey method was used. The research instrument was a structured questionnaire consisting of three parts. The first set of questions was related to the integration of technology in the hotel business. Another set of questions referred to the collection of data of guest consumption. The last part of the questionnaire contained questions about guest satisfaction. Questionnaires were distributed to hotel managers and to domestic and international hotel guests in the one of the best 5-star hotels on the Opatija Riviera (Croatia). The research was conducted in March, 2016.

The following table presents several important pieces of information (facts) which are relevant for reaching opinions and conclusions following the empirical research.

Number of rooms (nor)	200
Average occupancy for March 2016 (ao)	73.63%
Number of sold rooms in March 2016 (nsr)	4565
Occupancy factor (of)	1.7
Total number of guests in the hotel in March 2016 (tng)	7760.5 (4565x1.7)
Average number of guests per day in March 2016 (ang)	250.34 (7760.5/31)
Net non-accommodation consumption per guest per day (nnacg)	11.5$

Table 1: Data obtained from a 5-star hotel on the Opatija Riviera
Source: Data received from hotel management

According to internal data the average net non-accommodation consumption per day per guest amounts to approximately 11.5 $.

This means that in March 2016 the hotel had a daily net profit of

(ang) 250.34 x (nnacg) 11.5 = 2878.91 $

from non-accommodation consumption, which means that in March the hotel had a total non-accommodation net profit of

2878.91 x 31 day = 89 246.21 $

Bearing in mind the average net non-accommodation consumption per guest per day (the hotel's net profit per guest from non-accommodation consumption), one can easily compare the cost effectiveness of investing in the development of an application to the cost of developing and maintaining the application. However, what is certain is that such an application would have a positive impact on guest satisfaction while simultaneously increasing the daily net consumption of guests in the hotel.

Furthermore, the following tables present the data obtained from the empirical research which was conducted via self-administered questionnaires on the Opatija Riviera. The survey included managers from 30 hotels and the research was conducted on the guests of one of the finest 5-star hotels on the Opatija Riviera (Croatia).

Table 2 displays the results of hotel managers' opinions about integration of technology in the hotel business.

Item	%			
The development of technology essentially determines the changes in the hotel business	YES 100%	NO 0%		
Development of IT solutions for use in the hotel business is initiated by the IT industry sector or tourism sector	IT INDUSTRY SECTOR 53.6%	TOURISM SECTOR 46.4%		
In view of the answer to the previous question, please answer whether you think it is...	GOOD 69.6%	BAD 30.4%		
Because of technology integration business processes are always better and faster performed:	YES 65%	NO 0%	PARTIALLY TRUE 35%	
The integration of technology certainly affects the profit increase	YES 39%	NO 3%	PARTIALLY TRUE 52%	DONT KNOW 6%
Does your company measure the profitability of investments in technology?	YES 63.8%	NO 11.6%		DONT KNOW 24.6%
Are you satisfied with the software and hardware that you use in the business of informing visitors and stimulating their spending?	YES 30%	NO 5.8%	PARTIALLY TRUE 64.2%	
Have you ever had the opportunity to participate in projects of development of IT solutions for a particular part of the hotel business?	YES 14.5%	NO 85.5%		
Are software solutions intended for guests customized according to the guests' profile (age, country of arrival habits, Profile, hotel, etc.)?	YES 62.3%	NO 37.7%		
Do you analyze software use - what percentage of guests use certain software, the time of day it is used, if and when specific products or services are reserved or purchased via applications, etc.)	YES 68.1%	NO 31.9%		

Table 2: Integration of technology (hotel managers' opinions)
Source: Authors

When we observe and analyze the opinions from middle and top management gained by the empirical research, we can conclude that they absolutely agree that IT significantly determines hotel business (100%). However, when analyzing their opinions towards initiating changes in hotel business based on technological development, 53.6% of managers feel that the IT sector initiates changes, while 46.4% think that changes are initiated by the tourism industry. At the same time, 69.6% of managers think that this is good and 30.4% think that this is bad. These data indicate that further research is necessary and that it should pay particular attention on a scientific and professional level to the issues of initiating and implementing technologies in hotel business.

In fact, experts in hotel business should be the ones to initiate technological developments that should be applied in the hotel industry to a greater extent, based on their business experience. Furthermore, upon analyzing the remaining data we can conclude that almost 2/3 of managers (65%) feel that IT solutions help perform certain tasks better and faster. At the same time 39% think that integrating technology directly affects an increase in profit, while 52% state that this is only partly true. Based on the analysis of the remaining questions it can be observed that the opinions vary. Such divided opinions indicate that there is great need for conducting further scientific research in this direction.

Table 3 shows the results of guests' opinions which refers to the integration of technology and guest consumption.

Item	%	
Are guests informed of hotel offer (actions, special offers, etc.) via ICT solutions)?	YES 87%	NO 13%
If your previous answer is YES, do you think the information for each offer is placed at the right time?	YES 87%	NO 13%
Does a specific application (via tablet, hotel screen, room TV, smartphone, web site, social network, etc.) offer guests the option of keeping reservations or purchasing certain products with certain benefits (e.g. discount - booking massages)?	YES 81.2%	NO 18.8%
Does the use of software cause the desire to consume a particular service or product?	YES 87%	NO 13%
Have you booked or purchased a specific hotel product or service using technology (via tablet, hotel screens, room TV, smartphone, web site, social network, etc.)?	YES 55%	NO 45%

Table 3: Integration of technology and guest consumption (guests' opinions)
Source: Authors

When analyzing the second data set gained from the research, which refers to the integration of technology and guest consumption, it can be observed that 87% of guests think that they were satisfied with the way they were constantly "digitally" informed about the hotel's standard and special offers (via smartphone, room TV, service desk, tablet, etc.). At the same time, they feel that the hotel management took into account the timing of when to place promotional messages. The majority of guests (81.2%) are aware of the fact that the possibility to reserve and purchase certain products or services "digitally" is at their disposal. It can be concluded that promotional activities are relatively well thought out since 87% of the guests stated that the "digitally received information" enticed in them a desire to consume. It was surprisingly good to find out that 55% of guests bought and consumed certain products or services based on digitally received information from the hotel.

The following table shows the results of guests' opinions which refers to the integration of technology and guest satisfaction.

Item	%		
I am pleased with the way guests are constantly informed via technology about the products and services provided by the hotel (via tablets, hotel screens, room TV, smartphones, web sites, social networks, etc.)	YES 31.9%	NO 5.8%	PARTIALLY TRUE 62.3%
Are you satisfied with the way in which you can book or buy certain products or services offered by the hotel through the use of ICT?	YES 50.7%	NO 4.3%	PARTIALLY TRUE 45%
Do you think that ICT solutions for informing guests about the in-house hotel offer should be better?	YES 100%	NO 0%	
Do you think that you would have consumed more products and services within the hotel if you had been better informed about them?	YES 89.9%	NO 10.1%	

Table 4: Integration of technology and guest satisfaction (guests' opinions)
Source: Authors

When analyzing data referring to the integration of technology and guest satisfaction, we can see at first glance that guests think that there is a lot of room for improving the guest information system. In fact, 62.3% of guests are partially satisfied with the way they were informed by the hotel. This data also indicates the need to conduct further research in order to gain a fuller insight into the issue and in order to investigate it in a systematic way. Absolutely all guests (100%) feel that ICT solutions for informing guests should be better, of which 89.9% think that they would then consume more products and services.

5. CONCLUSION

The results of the research clearly show that there is a lot of room for improving the hotel in-house system for informing guests by using IT technologies. The authors are aware of the limitations of the research in terms of the sample size since only managers from one region were included in the research. Furthermore, this research only surveyed and examined the guests of one hotel, one of the best hotels in the region, which can result in a distorted insight of the issue. However, this data also provides us with relatively clear information which indicates the need for further scientific research in this area. By taking into account the data regarding the total non-accommodation individual consumption and the total daily guest consumption in hotels, and by correlating this with data obtained from the research it is apparent that there is ample space for various research and simulations that could monitor, direct and stimulate non-accommodation guest consumption in hotels in a more systematic way.

If hotel ICT solutions for the placement of timely multimedia hotel guest information were developed with greater quality (based on a better and more intense cooperation between the IT industrial sector, hotel managers and practitioners, as well as scientists in the field of tourism) and then used better and constantly analyzed based on semantic principles, then the net non-accommodation guest consumption per day would definitely significantly increase. This paper presents the conceptual framework of the MONKEY model. Based on this conceptual model the authors are already

working on the preparations for further extensive research both within Croatia and abroad. For the purpose of further, more complex, empirical research the authors are also simultaneously working on the development of a proposal for an application based on the MONKEY model and on the development of a multidimensional model/matrix that would measure the profitability and quality of application usage. This issue is certainly wide and demanding and due to the increasingly rapid development of IT and communication technology the tourism sector will also have to constantly invest significant effort in order to adapt to these changes, so that new technologies can be correctly implemented and that they can, in the end, positively influence the hotel's business result.

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"SOFT" PERSPECTIVE OF THE BUSINESS PROCESS ORIENTATION

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Abstract: *The purpose of this paper is to represent practical approach on the empirically evaluated business process orientation (BPO) of the Slovenian power supply business. Within the empirical investigation, the level of BPO maturity was measured in the 19 organizations of the power supply business. The survey was focused on the top, middle and lower managers. As a measuring instrument, a questionnaire for the extended concept of process orientation with nine elements was used. The results of the BPO measurement shows that, despite this long-standing preoccupation with processes, certified management system and the computerization of operations, process maturity is not very high. Results suggested the opportunities for improvement, particularly for better use and exploit of information technology. Presented research is the first one which considers the BPO maturity in the Slovenian power supply business and therefore contributes to understanding of the 'soft or intangible factors' which have impact on the introduction, implementation and maintenance of Business process management (BPM). As a result, it is found that contemporary literature acknowledges the importance of business process (BP), BPM and BPO maturity of the organization. Therefore, scope of used terminology comprises; BP is included by BPM, which is further embraced by BPO. This research makes significant contributions to the literature and above all to scholars and practitioners who work professionally in this field and will find useful guidance for a better understanding of applying BPO and suitable maturity models in different industries.*

Keywords: *Business process management (BPM), Business Process Orientation Maturity Model (BPOMM), Business process orientation (BPO), Business process reengineering (BPR), Process maturity*

1. INTRODUCTION

Among scholars is being discussed about four major schools of thought in management; Taylorism, human-resource orientation, operations research and systemic. Howsoever we view business process orientation (BPO) as a "fifth" school of thought in management, a perspective, or as a terminology, it is a fact that many successful companies are oriented toward business processes. The concept of process orientation promotes the identification of different organizational functions as well as an expanded role for various processes across organizations. This view promotes a "matrix-like structure" where recognition of key stakeholders is central to operations [1], [2].

BPO is extremely important for the success of business process management (BPM) efforts within organizations, e.g. McCormack and Johnson [7] research results indicate a surprisingly strong relationship between BPO and overall performance [8], [9], [10], [11]. Since both concepts are closely intertwined, surveys focusing on BPM and BPO are considered in the literature review [12], [13], [14].

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Owing to constantly changing business requirements and challenges, companies are forced to improve their processes in order to keep pace. As a consequence, BPM is among the most important managerial topics because it allows companies an agile adaptation. Choong's [15], [16] claim, that BPM-systems are the result of developments in both the business and IT-domain that focus on aligning all aspects of an organization with the expectations of customers.

Among the reasons for struggling to evolve and expand BPM practices across the organization are the lack of positive organizational culture, lack of support among senior management, the absence of clear roles and responsibilities in implementation, and insufficient budget and resources [17], [18], [19], [10], [20], [21].

From the BPO maturity research perspective the Slovenian power supply business organizations are interesting because of their engagement with process approach over many years. Most involved organizations have an ISO 9001 certified Quality Management System. One feature of their activity is that a lot of resources and efforts are directed to the automation and computerization of operations in the technical field, as clearly defined and documented processes are required in this business. The power supply business consists of all the installations and equipment for the generation, transmission and distribution of electricity, ensuring the maintenance of a balance between production (14.984 GWh) and consumption (82%) [3].

2. BUSINESS PROCESS ORIENTATION MATURITY

Process orientation enables organizations to think collectively as one unit about increasing their efficiency in meeting customer needs [14]. Davenport and Short [22] explicitly articulated 'process orientation' as a beneficial management practice. Hammer [23] identifies the development of a customer focused process-oriented way of thinking, enabled by information technology (IT) [24], [23], [25]. Both Business process reengineering (BPR) and BPM involve substantial organizational change, and hence require a long-period of time for both to materialize. By structuring BPR with BPM it will be possible to monitor and ensure the change is successful; BPM is considered a more holistic view of BPR in that the former includes the execution, measurement and control of processes, in addition to the modelling, improvement, and redesign of activities [26], [15].

According to many authors, the maturity and capability of business processes is acknowledged as a key determinant of an organization's ability to adapt and respond to emerging threats and opportunities, and thus its sustainability. Findings of several authors indicate that BPM involves many different aspects, ranging from process agility and performance measurement [27] to process-oriented organizational structure combined with industry-specific and IT expertise [28]. Along with the development of internet technology and applications, the associated network standardization, and a web services orientation, BPM started as the automation of a company's internal processes and then became more externally oriented towards the digitization of supply chains [16]. But it is the managerial processes that determine how this performance is sustained over time [29], [30], [10]. More importantly, the central notion of BPM is the requirement for managers to undertake the creation/addition of value for customers and for the organization [15].

Although many authors stress the importance of BPO [7], [14] or the organization's performance, extensive literature reviews on the subject indicate there remains a lack of comprehen-

sive studies that would clearly demonstrate the positive impact of BPO on performance [8], [9], [34], [35], [12], [10], [11], [13].

The process orientation and process maturity are two tightly related concepts. Organizations with increased process maturity have "higher levels of BPO". From this perspective, process orientation can be viewed as a measure of organization-wide process maturity [31], [5].

The concept of process maturity stems from the understanding that the processes have their life cycle or development stages, which can be clearly defined, measured and managed over time. The higher the degree of maturity of any process resulting in improved forecasting goals, costs and operating efficiency, the greater are the presumed performance and achievement of goals [32], [33], [36], [6]. Maturity is therefore synonymous with standardization and business process improvement [35], [20]. Different organizations mature at different rates, depending on the nature of the business and the emphasis placed on process improvement [25]. Findings of Movahedi, Miri-Lavassani and Kumar [2] have shown that if the organizational goal is centered on achieving higher customer satisfaction benefits; this can be achieved through better management of business processes at intra-organizational level (indirect effect) as well as inter-organizational level (direct effect).

3. RESEARCH METHODOLOGY

Within the framework of an empirical study, and the selected survey instrument [7], [37], the level of BPO maturity was measured in the 19 organizations from the power supply business.

As a measuring instrument, a questionnaire for the extended concept of process orientation with nine elements (see Figure 1) and with 7 Likert-scale levels was used, (ranging from a rating of 1 (not true) through to a rating of 7 (absolutely true) and additional choice 'I do not know'. To determine the level of maturity, McCormack's [38] four development stages maturity model was used [7], [38], [6], [39]; the degree of Ad Hoc (maturity level boundary including 4), Defined (4.01 to 5.5), Linked (5.51 to 6.5) and Integrated (6.51 to 7) was taken into account. The survey comprised the top, middle and lower managers, thus representing the population of 450 managers.

Questionnaires were submitted to respondents in agreement and with the support of the top managers of organizations. Namely, 240 fully completed questionnaires were received, which represented a 53.33% response rate. The survey was conducted via an online portal EnKlikAnketa (1KA) between February and March 2016. The questionnaire was pre-tested on a test sample of 34 respondents.

Based on the replies to the questionnaires, descriptive statistics and testing of assumptions for normality and reliability for every element of the BPO's questionnaire were calculated using the Statistical Package for Social Sciences (SPSS). The questionnaire included a control question: Do you agree with the statement 'Our organization is very process-oriented'?

The research's basic thesis is linked to the introduction of BPM and BPO, in which organizations management devote too little attention to 'soft or intangible factors' i.e. values, organizational culture [21] and behavior that promotes process functioning.

From here originates the first hypothesis, which was subjected to statistical assessment:

Hypothesis 1: Poor development of 'soft' elements associated with leadership, such as process oriented organizational culture, process oriented organizational structure and human resource (HR) management, reduces the level of an organization's process maturity.

The second hypothesis relates to the perception of the BPO by the top, middle and lower management. Practice often points out that top management assesses the BPO maturity and performance of BPM more positively.

Hypothesis 2: Middle and lower management assesses the performance of realized business process orientation and business process management more critically than the top management.

4. FINDINGS AND DISCUSSION

Hypothesis verification

Hypothesis 1: First hypothesis H1 was tested in two steps. Firstly, the correlation analysis was performed, which established the dependence between 'soft' elements related to leadership and the level of the BPO maturity, and where, as a level of business process orientation, the responses of managers to the control question were taken into account.

Correlation analysis showed that between process oriented organizational culture, process oriented organizational structure, HR management and the organization's business process orientation, there is a positive medium-strong correlation (correlation range from 0.599 to 0.649). From the results it was noted that underdeveloped 'soft' BPO elements, reduce the level of the organization's business process maturity.

Secondly, the influence of 'soft' elements of BPO associated with leadership (independent variables), on the level of the organization's business process orientation (dependent variable) was analyzed using multiple regression analysis. A histogram and graph of standardized regression residues demonstrated that the residues were normally distributed.

Multiple regression analysis results (Table 1) showed that dependent variable BPO is positively affected by all three 'soft' elements associated with leadership.

Model	Unstandardized coeff. ßi	Unstandardized coeff. Std. error	Standard. Coeff. Beta	R^2	t	Sig.
Constant	-0.119	0.396		0.525	-0.300	0.765
Process oriented organizational structure	0.252	0.121	0.164		2.081	0.039
Process oriented organizational culture	0.493	0.112	0.391		4.419	0.000
HR management	0.298	0.114	0.236		2.616	0.010

Note: Business process orientation is dependent variable.

Table 1: Regression coefficients for H1 [6]

The regression model explained 52.5% of the variability of business process orientation of 19 surveyed organizations (Table 1). Consequently, the first hypothesis was accepted.

Hypothesis 2: For the verification of the second hypothesis and analysis validation the three (top, middle and lower) surveyed groups of managers were divided into two:

- First group: top management (CEO or general manager, director of the company, member of the management board, deputy CEO or deputy director of a company, director or executive director of the organizational unit);
- Second group: middle and lower-level management (head of department, head of unit, project manager).

Hypothesis H2 was tested with T-test for independent samples. Results indicate that evaluation of BPO elements' averages cannot be seen as statistically significant (Table 2) between the two groups of respondents. On average, both groups relatively equally assessed individual elements of business process orientation maturity (Table 2). Based on this finding the second hypothesis was rejected.

Elements	Group	N	Average	Sig.
Strategic perspective	Top management	33	4.91	0.931
	Middle and lower management	158	4.93	
Determination and documenting of processes	Top management	32	5.23	0.943
	Middle and lower management	165	5.20	
Measurement and management of processes	Top management	32	4.76	0.543
	Middle and lower management	183	4.95	
Process oriented organizational structure	Top management	31	4.93	0.351
	Middle and lower management	171	4.73	
HR management	Top management	33	4.53	0.139
	Middle and lower management	192	4.39	
Process oriented organizational culture	Top management	31	4.75	0.165
	Middle and lower management	184	4.58	
Market orientation	Top management	32	4.54	0.085
	Middle and lower management	140	4.63	
Suppliers' perspective (business partners)	Top management	31	4.53	0.080
	Middle and lower management	141	4.45	
Process oriented information technology	Top management	31	3.97	0.312
	Middle and lower management	115	4.29	

Note: Nine elements from a questionnaire (see Figure 1).

Table 2: BPO elements T-test results for H2 [6]

Hypothesis verification confirmed that managers should put much more emphasis on developing the soft elements of the BPO and that there is still much room for improvements.

Analysis of results and discussion

Research of the Slovenian power supply business showed that BPO maturity is not high. This may be due to the fact that BPM is often understood very narrowly only by completing the ISO 9001 requests, sometimes also very technically. Including that sometimes the BPM-system is regarded as a software application, which should be further investigated. However, the

BPM-system should be rather considered as the basis for a new paradigm in the BPO context. In practice, BPM confirms itself as an appropriate way to innovate and transform organizations and develop their agility.

Regarding the questionnaire's control question, managers on average agreed, with a score of 4.73 on the Likert scale, which was also obtained by statistical evaluation of measured values of the nine individual BPO elements (average = 4.68; Figure 1).

Top-rated BPO elements were the Determination and documenting of processes (5.21), Strategic perspective (4.92) and Measurement and management of processes (4.92). The lowest evaluated elements were Process oriented information technology (4.22), HR management (4.41) and Suppliers' perspective (4.46). The lowest score for information technology represents a surprise, which, within individual power supply organizations deserves a more detailed analysis and appropriate action (Figure 1).

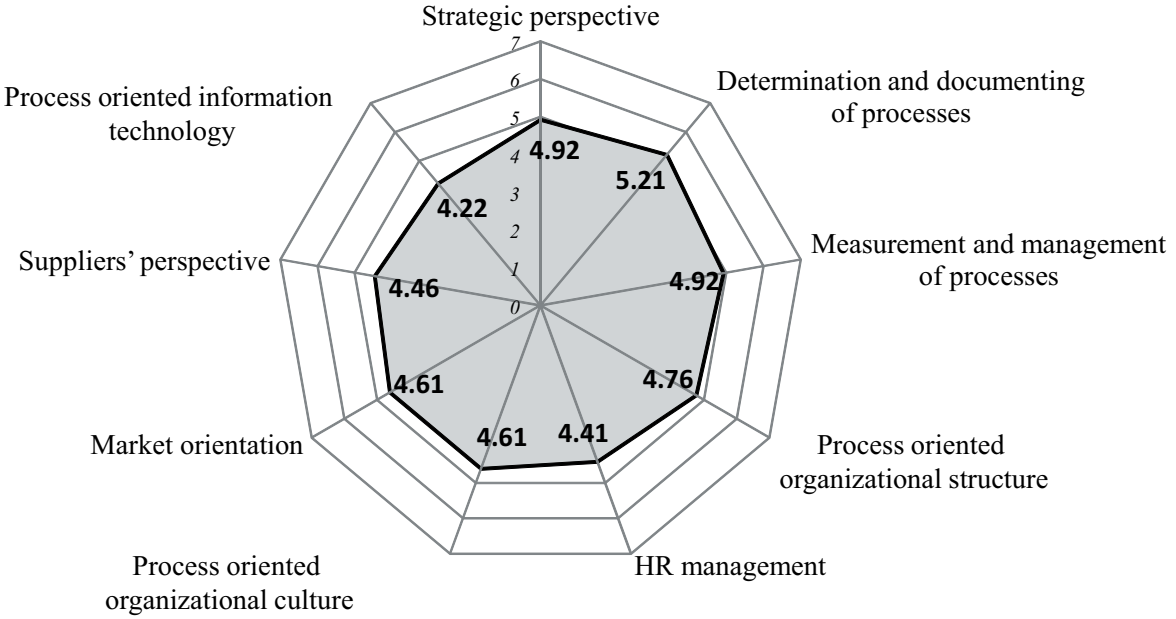

Figure 1: Statistically evaluated estimates of BPO elements [6]

Based on the calculated average value of BPO, the power supply business is located on the 2nd level as defined in McCormack's Process Orientation Maturity Model (BPOMM). This level is characterized by the defined and documented processes [38].

Analysis of the results points to the need for better communication with employees. Lowest estimates of the individual elements are for statements concerning the acquaintance of employees with strategic objectives, indicator results and achievement of processes and the expected changes. The power supply business is a highly technical activity, which is dominated by managers from technical sciences. Employees are unfamiliar with methods for processes improvement and are not stimulated for process improvement proposals, which may represent a serious obstacle to the further improvement of the processes' effectiveness and efficiency. Namely, 29.2% of respondents think that they do not have special organizational units for process management. Here is an opportunity for managers to devote more attention to organizational culture [21] and behavior that promotes process orientation deployment [31], [14].

5. CONCLUSIONS

Presented research is the first one which considers the business process orientation maturity in the Slovenian power supply business. Therefore, makes significant contributions to the literature and above all to managers, scholars and practitioners who work professionally in this field and will find useful information and guidance for a better understanding of the business process orientation and maturity models (i.e. McCormack and Johnson's BPOMM).

Based on the lowest estimated statements and BPO elements [6], [39], a definite improvement programme can be planned for the implementation of BPO and transition to the third stage of maturity. For faster implementation of BPO, leaders will have to pay more attention to the implementation of relevant values and organizational culture.

Further impetus in this direction may also represent the discussed insight into the relationship between the development level of BPO and the business performance of power supply chain organizations.

Given the observed deficiencies in the HR management perspective, especially with communication, checking the differences between the estimates of managers and employees could provide an opportunity for future research. Future research should involve conducting investigations in different industries in order to gain further insight on the factors supporting or preventing the use of BPMMs in practice.

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IMPORTANCE AND SATISFACTION OF EMPLOYEES WITH FACTORS RELATED TO JOB SATISFACTION: DIFFERENCES BETWEEN GENERATION X AND Y

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Abstract: *Generation Y and Generation X already comprise the majority of the global workforce. Generation Y employees are different from those of prior generations. They have different expectations and bring different personalities and attitudes to the workplace, but share many of the characteristics of Generation X. In our study, we tried to identify whether there are differences between the importance and satisfaction with factors related to job satisfaction between Generation X and Generation Y. The target population in this study was limited to Generation X (1965-1980) and Generation Y (1981-1996) living and working in Slovenia. The questionnaire contained questions referring to (i) general data, (ii) work and working conditions, (iii) leadership and senior management, (iv) compensation and benefits, (v) career development, and (vi) technology. In order to examine the research, questions mean values and standard deviations of the responses to individual items were calculated and Paired-Samples T-Tests were conducted to examine the averages. The study results revealed that most of the job-related factors are important to members of Generation Y, and workplace satisfaction is low. The most important factor is leadership & senior management, the least important is technology and they are most satisfied with work and working conditions and least satisfied with compensation and benefits. The same goes for Generation X, which means that there is still a lot of room for improvements in all five job satisfaction factor groups of our study.*

Keywords: *Generation X, Generation Y, workforce, job satisfaction, generation differences*

1. INTRODUCTION

In the year 2015, members of the Generation Y left Generation X behind to become the largest population in the American workforce. The proportion of Generation Y members in the workforce will only continue to increase throughout the era of Baby Boomer Generation retirements [1], [2]. This large demographic shift creates the need for organizations to re-evaluate their internal systems and leadership styles [3].

Generation Y workers are different from workers from prior generations, hold different expectations and bring different personalities and attitudes to the workforce but share many of the characteristics of Generation X. They both value team work and collective action, prefer flexible schedules and are entrepreneurial [4]. One of the most frequently reported characteristics of Generation Y is their comfort with technology. They have been characterized as demanding and switch jobs more often than previous generations (on average every 1 to 2 years) [5], [6].

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Managing members of different generations is becoming an increasingly difficult challenge. Organizations with a one-size-fits-all approach will not be successful in the future and represent only the beginning of the end. Therefore, these generational differences may call for adaptations to our current theories [5], [7]. In order for organizations to be successful, they must continuously ensure the satisfaction of their employees. According to Daud, job satisfaction comprises the degree of an individual's feelings towards satisfaction with current job activities, the achievements and responsibilities as well as the degree of an individual's satisfaction with all the aspects that are directly or indirectly related to the current job and job content. Previous research has shown that job satisfaction is negatively related to employees' intention to leave the organization [5].

Generational differences in the workplace have been a popular topic over the past years [8], [9]. In our study, we have limited ourselves to Generation X and Y. We have assumed that there are differences at the workplace between generations. We included five factor groups: work & working conditions, compensation & benefits, career development, leadership & senior management and technology, influence job satisfaction in our research, in which we determine which factors are important for a particular generation and what is the current satisfaction with these factors. We wanted to know if there are differences between importance and satisfaction with factors related to job satisfaction between Generation X and Y.

2. METHOD

Sample
The target population for this study was limited to the Generation X (1965-1980) and Generation Y (1981-1996) living and working in Slovenia. The participants were accessed randomly and assured anonymity. The survey was conducted in the year 2018.
The survey included 102 participants, 23 of the Generation X of which 9 (39.1 %) were male and 14 (60.9 %) were female, and 79 participants of the Generation Y of which 30 (38 %) were male and 49 (62 %) were female.

Instrument
The questionnaire contained 88 closed-ended questions referring to (i) general data (gender, age, employment status, years of service, level of education), (ii) work and working conditions, (iii) leadership and senior management, (iv) compensation and benefits, (v) career development, and (vi) technology. In the first part of the questionnaire, participants evaluated the strength of the importance of individual factors from (ii) to (vi). In the second part, participants evaluated the actual satisfaction with these factors at the current workplace. For the items from (ii) to (vi), we used a 5-point Likert scale from absolutely unimportant (1) to very important (5) for the first part and from highly dissatisfied (1) to highly satisfied (5) for the second part. The instrument for data collecting was adjusted according to an employee job satisfaction and engagement survey; a research report by SHRM [9].

3. RESULTS

The comparison between Generation Y and X's average satisfaction and average importance values of different factors related to work and working conditions is shown in Figure 1. Members of Generation X are more satisfied with job security than it is important to them. Financial stability, overall corporate culture, and relationships with co-workers are less important to Gen-

eration Y. Relationships with co-workers, interesting work, and teamwork between departments are more important to both generations in comparison with their satisfaction which is much lower than their expectations. Generation Y and X are more satisfied with employment until retirement within the same company and the possibility of working abroad within the same company. The importance of all other factors is greater than satisfaction, which suggests improvements in this area.

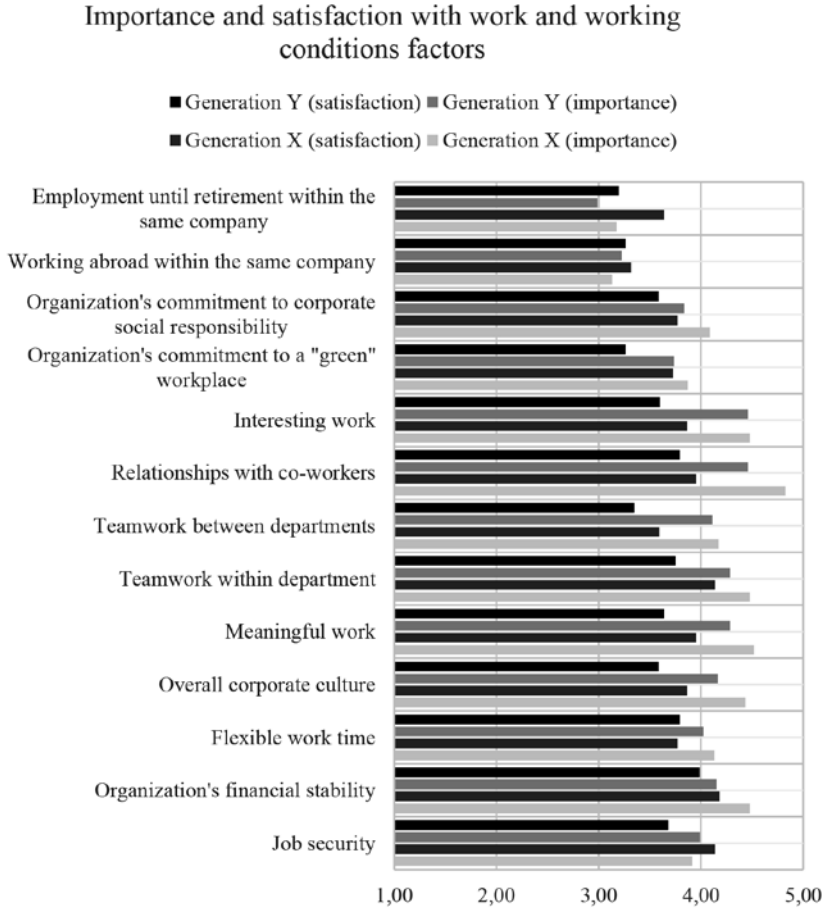

Figure 1: Mean values of importance and satisfaction with work and working conditions factors

Statistically important differences between Generation X and Y regarding importance only for the factors' relationships with co-workers (t=3.175; p=0.02) and organization's financial stability (t=2.043; p=0.045) were found. There are no statistically important differences between Generation X and Y regarding satisfaction with factors of work and working conditions.

The comparison between importance and satisfaction with relationship with management aspects is shown in Figure 2. The most important factors for both generations are respectful treatment of all employees at all levels, fair treatment of all employees at all levels and trust between employees and senior management, but they are not quite satisfied with them, especially Generation Y. Autonomy and independence at work are more important to members of Generation X than to Y. Meanwhile management's communication of organization's goals and strategies and management's recognition of employee job performance are important to both generations, where Generation Y is more dissatisfied with these factors.

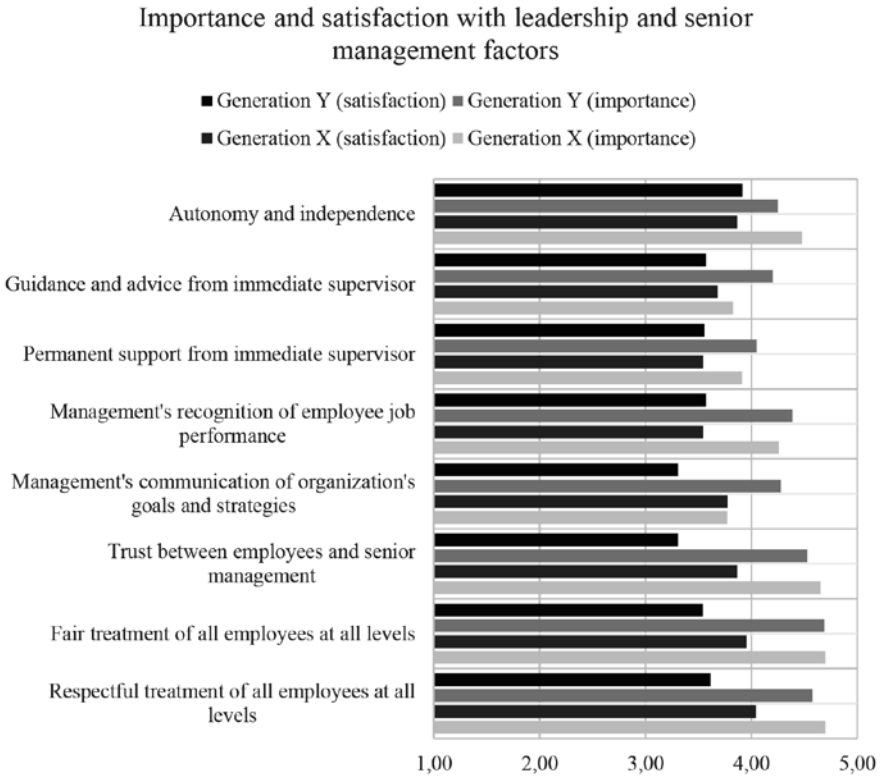

Figure 2: Mean values of importance and satisfaction with leadership and senior management factors

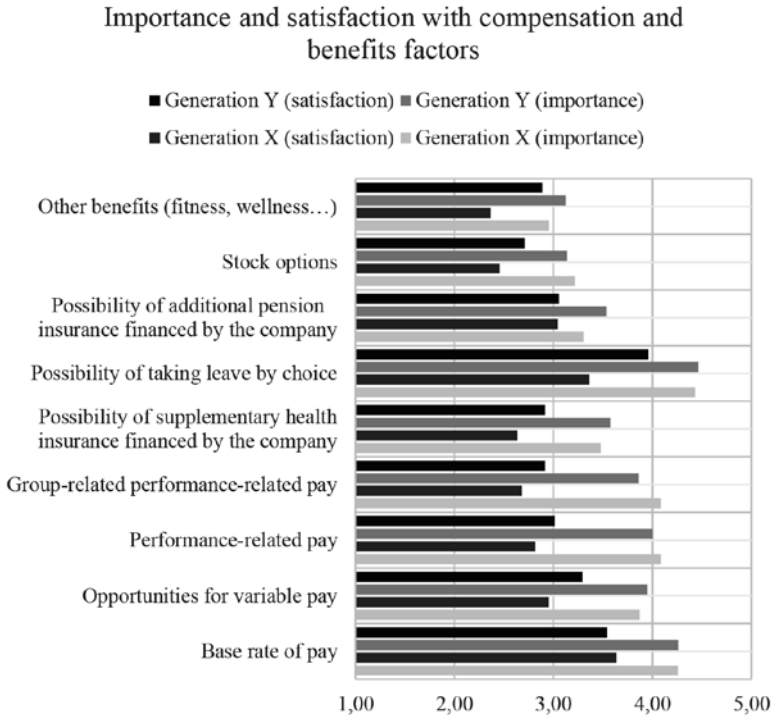

Figure 3: Mean values of importance and satisfaction with compensation and benefits factors

There are no statistically important differences between Generation X and Y regarding importance and satisfaction with factors of leadership and senior management.

Figure 3 represents importance and satisfaction with compensation and benefits factors. We can see that the possibility of taking leave by choice is the most important factor for both generations, where Generation Y is much more satisfied with it. Both generations rated the following factors as important: base rate of pay, opportunities for variable pay, performance-related pay and group-related performance-related pay; they are less satisfied with these factors at their current workplace. Another interesting fact is that the possibility of additional pension insurance financed by the company is more important to Generation Y than to X.

There are no statistically important differences between Generation X and Y regarding importance with compensation and benefits factors. Statistically important difference between Generation X and Y regarding satisfaction only for the factor possibility of taking leave by choice (t=-2.198; p=0.030) was found.

Figure 4 shows importance and satisfaction with career development factors. Opportunities to use skills and abilities at work is more important to Generation X than to Y. Career advancement opportunities, career development opportunities and opportunities to acquire and share knowledge are more important to Generation Y.

Statistically important difference between Generation X and Y regarding importance only for the factor career development opportunities (t=-2.117; p=0.037) was found. There are no statistically important differences between Generation X and Y regarding satisfaction with career development factors.

Figure 4: Mean values of importance and satisfaction with career development factors

The comparison between importance and satisfaction with technology factors is shown in Figure 5. Generation X is more satisfied with every technology factor compared to Generation Y. The most important factor to both generations is the possibility to use state-of-the-art software, with which Generation Y is less satisfied. The possibility to use social networks for communication purposes at workplace is beyond the expectations; both generations are more satisfied with this factor in comparison with importance. There are no statistically important differences between Generation X and Y regarding importance and satisfaction with technology factors.

The overall mean values of importance and satisfaction of the factor groups are shown in Figure 6. The most important group to surveyed members of Generation Y and X is leadership and senior management, tightly followed by career development. Both generations are quite satisfied with career development and leadership and senior management, compared to their importance. Generation X and Y both want more from their leaders. They want to grow and develop their careers as well. Another gap between importance and satisfaction is at the compensation and benefits group. Both generations are generally less satisfied with this aspect. Minor differences can be noticed at work and working conditions, where respondents of both generations are quite satisfied compared to importance. The technology group has the smallest difference, where members of Generation X are generally equally satisfied with this group as it is important to them. Comparatively, Generation Y is less satisfied with this group at the workplace.

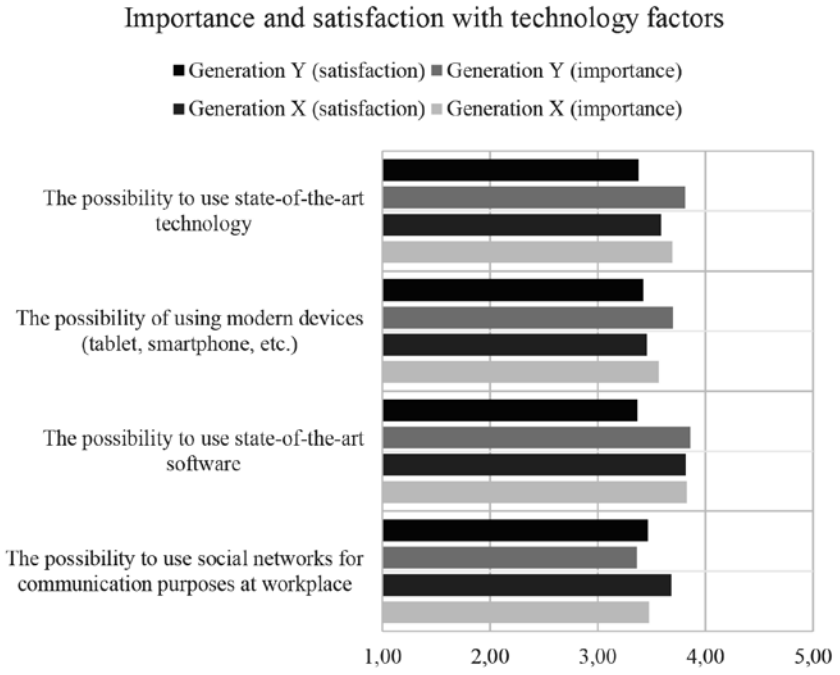

Figure 5: Mean values of importance and satisfaction with technology factors

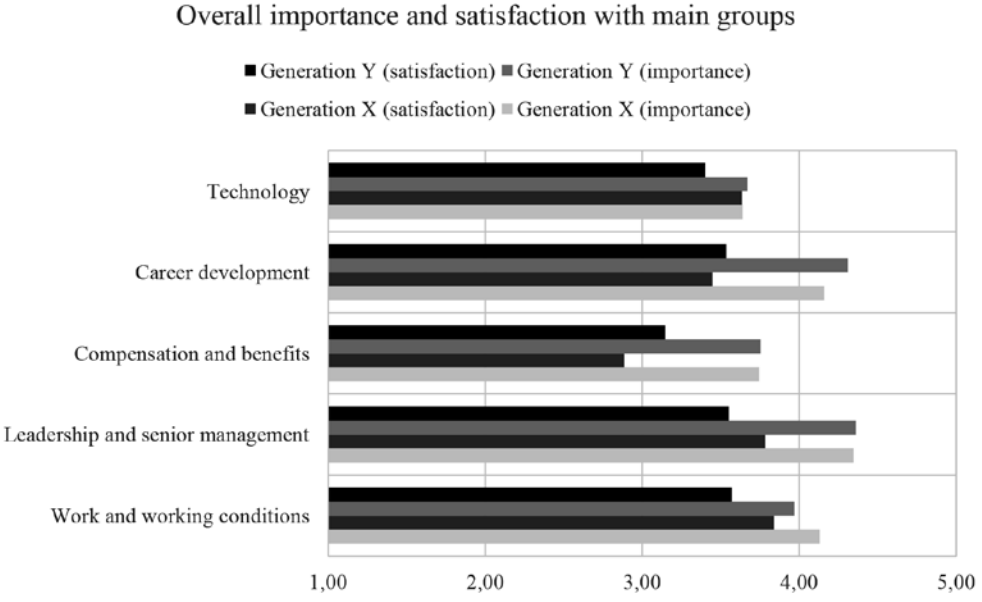

Figure 6: Mean values of importance and satisfaction with main groups

Next, we tested if there are statistically important differences between Generation X and Generation Y within each particular group of interest. Independent Samples Test was conducted and there were no statistically important differences found within each group regarding satisfaction or importance.

We also tested if there are statistically important differences between importance and satisfaction between the main groups for both generations together. To examine the averages, we conducted Paired-Samples T-test (Table 1). First 4 pairs have the Sig. (2-tailed) value equal to 0.000. At 1 % risk we can claim that there are statistically important differences between importance and satisfaction within groups: work and working conditions, leadership and senior management, compensation and benefits and career development. The technology (Pair 5) has the Sig. (2-tailed) value equal to 0.179, which means that zero assumptions about the equivalence of averages cannot be rejected at 5 % risk. We can say that there is no statistically important difference between the importance and satisfaction of technology group.

	Paired Differences					
Importance and satisfaction with	Mean	SD	Std. Error Mean	t	df	Sig. (2-tailed)
work and working conditions (Pair 1)	.356	.784	.081	4.377	92	.000
leadership and senior management (Pair 2)	.707	1.194	.124	5.710	92	.000
compensation and benefit (Pair 3)	.683	1.149	.119	5.731	92	.000
career development (Pair 4)	.744	1.180	.122	6.076	92	.000
technology (Pair 5)	.190	1.347	.140	1.354	91	.179

Table1: Paired Samples T-test

4. DISCUSSION AND CONCLUSIONS

When researching the importance and satisfaction of individual factors related to work and working conditions, we found that relationships with co-workers, teamwork, and interesting and meaningful work are the most important factors for Generation Y, which has also been reported by other researchers [9], [10]. It is interesting that Generation Y and Generation X are satisfied with the possibility of working within the same company until retirement. Both generations are also quite satisfied with job security even though this factor is not as much important to members of Generation X. Job security is important to Generation Y, which might be the result of the recent economic crisis, where many parents of Generation Y lost their jobs. Another factor, which is also quite important to members of both generations, is flexible working time and it seems that both generations are quite satisfied with this at their current workplace.

Respectful and fair treatment of all employees at all levels and trust between employees and senior management are most important factors in terms of leadership aspects to Generation Y, but they are dissatisfied with them at their current workplace. These factors are associated with modern leadership styles such as coaching, mentoring, ethical leadership and authentic leadership. All those leadership types are related to other factors that are important to Generation Y, such as counselling, continuous support, job performance recognition and clear communication of organization's goals and strategies. Other researches [7], [8], also found that leadership style has a considerable impact on job satisfaction. On the other hand, these factors are less important to Generation X who want more autonomy and independence.

The next job satisfaction group is compensation and benefits. It turned out that taking a leave by choice is the most important to members of Generation Y, which related to their lifestyle completely. They spend their free time with family and friends and go on trips. In addition, the base rate of salary, variable and performance-related pay is also important to them. Financial rewards are an important factor that affects the loyalty of Generation Y, although this does not coincide with the idea that Generation Y does not like employers who are profit-oriented.

Another overall important aspect to members of Generation Y is career development, as young people are eager for new knowledge and rapid advancement. We have found that all the factors in this group are important to both generations and that they are considered one of the most important among all the other aspects.

One of the newer aspects of job satisfaction is technology. Under this aspect we include the technology used by employees at their workplace, namely hardware and software, information systems and web technology. Generation Y is less satisfied with all factors compared to Generation X, but both of them did not consider them as very important. The possibility of using state-of-the-art software and technology are the two most important factors to Generation Y. This has also been reported by other authors [11], [12].

To sum up, most of the researched factors are important to members of Generation Y, whereas they are less satisfied with them at their current workplace. The most important aspect is leadership and senior management, the least important to members of Generation Y is technology and they are the most satisfied with work and working conditions, and the least with compensation and benefits. The same goes for Generation X, which means that there is still a lot of room for improvement in all five job satisfaction groups. Generation Y is a smart and demanding generation that will explore its options and will not allow organizations to exploit it. If they will be dissatisfied at the current workplace, they will find another job in a short time and leave the organization.

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A FRAMEWORK FOR THE QUALITY CONTROL MANAGER SELECTION BASED ON THE PIPRECIA AND WS PLP METHODS

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Abstract: *Increasing demand for quality products has an impact on the rising significance of the role of the quality control manager. Recruiting a new quality control manager and his/her selection amongst a greater number of the candidates who have applied is a very complex task. There are a significant number of the criteria that a candidate should meet, which on their part affect the final ranking and selection. It is a very delicate decision because there is a very thin line separating a good choice from a bad one. With the aim of facilitating the process of the selection of a quality control manager, the application of the framework based on the PIPRECIA (PIvot Pairwise RElative Criteria Importance Assessment) and WS PLP (Weighted Sum method, based on the decision-maker's Preferred Levels of Performances) methods is proposed in this paper. The applicability of the proposed framework is presented by a numerical example, where three decision-makers evaluate six candidates against the five evaluation criteria.*

Keywords: *WS PLP method, PIPRECIA method, quality control manager, selection.*

1. INTRODUCTION

In modern business conditions, when companies are faced with extremely strong competition, the key success item is the quality personnel who invest their knowledge, skills and energy in the achievement of the intended results. In that sense, the evaluation and selection of such personnel, who will contribute to its further development and progress, is a very important and complex task for companies to do. The process of the evaluation and selection of a candidate does not only acknowledge the considered candidate's existing performances, but it also acknowledges how he/she will behave in the future and how he/she will contribute to the company's future business operations.

Beside educated and competent personnel, the fact that significantly influences a company's performances and rating is certainly the quality of the product or service offered to its consumers. Companies always tend to completely meet their consumers' expectations and, if possible, even exceed them. Different processes are conducted within a particular company, but the quality control process is extremely important because it ensures that the final product is in accordance with consumers' expressed preferences [1]. So, it is clear that the selection of a quality control manager is a critical issue because of the fact that his/her knowledge, abilities and competencies are what the final result, i.e. the product to be offered to consumers, depends on. Because of that, different criteria should be taken into account during the process of the selection of a quality control manager in order to promulgate the best possible decision, and Multiple Criteria Decision-Making methods (MCDM) are a useful help in looking for the optimal choice.

MCDM methods are a part of operational research and management science, which has especially been increasingly popular in the last few decades. Over time, different methods have been proposed, such as the widely known: SAW or WS [2], AHP [3], TOPSIS [4], as well as the

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newly-introduced methods, such as: SWARA [5], WASPAS [6] and EDAS [7]. Apart from the previously mentioned methods, there are many more that are possible to apply in many business fields and in solving real-life problems. Additionally, appropriate extensions of the MCDM methods are proposed by introducing fuzzy, grey or rough numbers.

Various MCDM methods are applied in the case of personnel selection. For instance, Karabasevic et al. used a combination of the SWARA and ARAS methods, as well as the SWARA and WASPAS methods [8], [9]. Appropriate extensions for resolving the issue of personnel selection are proposed, the paper by Afshari et al., which provides an overview of fuzzy decision-making applied in the mentioned area, being a good example [10]. The selection of an adequate project manager is a very interesting topic as well [11], [12]. Zolfani et al. used the AHP-COPRAS-G methods with the aim of selecting an adequate quality control manager [1]. For that purpose, a framework based on the PIPRECIA [13] and WS PLP [14] methods is proposed in this paper. In order to demonstrate the usability of the proposed framework, the rest of the paper is organized as follows: in the second section, the proposed framework is explained; in the third section, an illustrative numerical example is given; in the end, the conclusion is presented.

2. THE PROPOSED FRAMEWORK

In this section, a detailed explanation of the PIPRECIA and WS PLP methods, which are the basis of the proposed framework for the selection of the optimal candidate who will perform the role of the quality control manager, is given. The PIPRECIA method is proposed for the purpose of determining the significance of the evaluation criteria, whereas the WS PLP method is used for the purpose of the final ranking and selection of the optimal alternative, i.e. the optimal candidate.

2.1. THE PIPRECIA METHOD

In the MCDM methods application process, defining criteria weights is a very important stage. For that purpose, different MCDM methods are used, such as: the AHP method [3], the entropy method [15], the SWARA method [5] and the KEMIRA method [16]. In this paper, the utilization of the PIPRECIA method, introduced by Stanujkic et al., is proposed [13]. The given method is very useful to apply in the conditions when the decision-making process involves a larger number of participants, when it could be applied through the following steps.

***Step* 1**. Determine the evaluation criteria that will be the basis for carrying out the decision-making process.

***Step* 2**. Detect the relative significance s_j, starting from the second criterion in the following manner:

$$s_j = \begin{Bmatrix} >1 & when & C_j \succ C_{j-1} \\ 1 & when & C_j = C_{j-1} \\ <1 & when & C_j \prec C_{j-1} \end{Bmatrix}. \quad (1)$$

***Step* 3**. Define the coefficient k_j as follows:

$$k_j = \begin{cases} 1 & j = 1 \\ 2 - s_j & j > 1 \end{cases}. \tag{2}$$

***Step* 4**. Determine the recalculated value q_j by applying the following Eq.:

$$q_j = \begin{cases} 1 & j = 1 \\ \dfrac{q_{j-1}}{k_j} & j > 1 \end{cases}. \tag{3}$$

***Step* 5**. Distinguish the relative weights of the estimated criteria in the following manner:

$$w_j = \frac{q_j}{\sum_{k=1}^{n} q_k}, \tag{4}$$

where w_j is the relative weight of the criterion *j*.

2.2. THE WS PLP METHOD

The WS PLP method proposed by Stanujkic and Zavadskas [14] represents a modified and improved version of the widely known WS method. It enables the acknowledgement of the decision-maker's (hereinafter referred to as the *DM*) expectations to a higher degree by introducing preferred performance ratings, namely *ppr* values. So, the *DM* determines in advance the criteria values that reflect his/her requirements, and available alternatives are estimated relative to these values. This method enables making a clear distinction between the alternatives with the best performances among all from that which best fits in the set preconditions expressed through the *ppr* values. Besides, during the procedure, the alternatives that are not acceptable, i.e. those not matching the given limits, are excluded from the further evaluation process. In that manner, a set of available alternatives are transformed into a set of appropriate alternatives, and a selection is performed out of the second set.

This method is considered appropriate to apply in the process of the selection of a quality control manager since the *DM*s involved in the procedure mainly know what their expectations are in connection with the candidates' competences; by applying the WS PLP method, they can immediately express them and estimate the candidates according to their requirements. Also, the given method provides such *DM*s with a possibility of deciding whether they want to give advantage to the candidate who is the best of all the other candidates, or to the candidate who better meets the given ppr values. Sometimes, some alternatives have a good ranking position because they have good performances relative to one or only a few criteria, while in respect to the other criteria they may even be worse. The application of the WS PLP method exactly enables the minimization of the occurrence of a situation of this kind because it clearly indicates whether the given alternative has a better position because some parameters are extremely good, whereas the other are quite bad, thus quite reducing the possibility of making bad and inadequate decisions.

The computational procedure related to the application of the WS PLP method is as follows:

***Step* 1**. A decision matrix containing evaluation criteria, criteria weights and the alternatives that will be estimated is created.

***Step* 2.** *DM*s determine the *ppr* values according to their preferences, which depicts the elements of the virtual alternative $A_0=\{x_{01}, x_{02}, \ldots x_{0n}\}$. In case the *DM* does not define the *ppr* value of any criterion, it is determined as follows:

$$x_{0j} = \begin{cases} \max\limits_i x_{ij} \,|\, j \in \Omega_{\max} \\ \min\limits_i x_{ij} \,|\, j \in \Omega_{\min} \end{cases}, \tag{5}$$

where x_{0j} is the optimal *ppr* of the criterion *j*; $\Omega_{\max}$ is a set of benefit criteria and $\Omega_{\min}$ is a set of cost criteria.

***Step* 3.** The normalization procedure is performed by applying Eqs (6) and (7):

$$r_{ij} = \frac{x_{ij} - x_j^*}{x_j^+ - x_j^-}; j \in \Omega_{\max}, \text{ and} \tag{6}$$

$$r_{ij} = \frac{x_j^* - x_{ij}}{x_j^+ - x_j^-}; j \in \Omega_{\min}, \tag{7}$$

where r_{ij} denotes the normalized performance rating of the alternative *i* with respect to the criterion *j*, x^*_j denotes the *ppr* value of the criterion *j*, and x^+_j and x^-_j are the highest and the lowest performance ratings of the criterion *j*, respectively.

***Step* 4.** The overall performance rating for each alternative is calculated by the following Eqs:

$$S_i = \sum_{j=1}^{n} w_j \cdot r_{ij}, \tag{8}$$

where S_i is the overall performance rating of the alternative *i*, and $S_i \in [0,1]$.

The calculation should be continued through the following steps in case two or more alternatives fulfil the condition $S_i>0$. Otherwise, the procedure ends in this step and the best choice is the alternative whose S_i is the biggest.

***Step* 5.** For the alternatives that meet the condition $S_i>0$, the compensation coefficient should be determined by applying the following Eqs.:

$$c_i = \lambda d_i^{\max} + (1-\lambda)\,\overline{S}_i^+, \tag{9}$$

where:

$$d_i^{\max} = \max_i d_i = \max_i r_{ij} w_j, \tag{10}$$

$$\overline{S}_i^+ = \frac{S_i^+}{n_i^+}, \tag{11}$$

where d_i^{max} denotes the maximum weighted normalized distance of the alternative i relative to the *ppr* values of all the criteria, so that $r_{ij}>0$, $\overline{S}_i^+$ is the average performance ratings gained on the basis of the criteria, so that $r_{ij}>0$, n_i^+ represents the number of the criteria of the alternative i, so that $r_{ij}>0$, λ is the coefficient (λ=[0,1]) and most often it is set at 0.5.

***Step* 6.** The calculation of the adjusted performance rating should be performed for all the alternatives in which S_i by using Eq. (12):

$$S_i' = \sum_{j=1}^{n} w_j r_{ij} - \gamma c_i, \tag{12}$$

where S'_i denotes the adjusted overall performance rating of the alternative i, c_i is the compensation coefficient ($c_i>0$), and γ is the coefficient (λ=[0,1]).

***Step* 7.** The highest S'_i value belongs to the most acceptable alternative ranked as the first and the remaining alternatives are ranked in ascending order according to their S'_i values.

3. AN ILLUSTRATIVE NUMERICAL EXAMPLE

With the aim of implying the usability and applicability of the proposed framework for the selection of a quality control manager, three *DM*s were involved in the evaluation of the six potential candidates (A_1, A_2, A_3, A_4, A_5 and A_6) for the position in industry production. Every candidate involved in the selection process had different performances relative to his/her experience, education and other characteristics. The *DM*s, who are experts in the field of human resources and quality management, estimated the candidates concerned according to the previously defined criteria. These evaluation criteria are given in Table 1.

Criteria		*Description*
C_1	Familiarity with the product and the materials used	Appropriate knowledge of the product performances and the characteristics of the materials used
C_2	Education and experience	Appropriate formal education and a suitable period of time spent in the same position in previous workplaces
C_3	Familiarity with administration	The knowledge of the laws, regulations and procedures relative to the given business field
C_4	Flexibility	The ability to react fast to changes in the environment, as well as in the company
C_5	Risk assessment	The ability to successfully anticipate and manage risk
C_6	Teamwork	The ability to connect and work with other associates

Table 1: Evaluation criteria [1]

In the paper by Zolfani et al. [1], apart from the criteria for the evaluation of the candidates for the position of the quality control manager given in Table 1, there is yet another one – *Salary*. In our case, the mentioned criterion is not involved in the given set because it is treated as a constant.

The first step in the application of the proposed framework involves the determination of the weights of the given criteria. Each *DM* makes his/her own estimation of the proposed criteria and, by using Eqs. (1)-(4), the final criteria weights are determined. The weights of the criteria for the first *DM* are presented in Table 2.

Criteria		s_j	k_j	q_j	w_j
C_1	Familiarity with the product and the materials used		1	1	0.19
C_2	Education and experience	1.00	1.00	1.00	0.19
C_3	Familiarity with administration	0.80	1.20	0.83	0.16
C_4	Flexibility	0.50	1.50	0.56	0.10
C_5	Risk assessment	1.30	0.70	0.79	0.15
C_6	Teamwork	1.30	0.70	1.13	0.21
				5.32	1.00

Table 2: Criteria weights – DM_1

The results presented in Table 2 show that the most significant criteria according to the DM_1 is the criteria C_6 – *Teamwork*. By applying the previously mentioned Eqs. (1)-(4), the criteria weights, which are in accordance with the standpoint of the DM_2, are determined (Table 3).

Criteria		s_j	k_j	q_j	w_j
C_1	Familiarity with the product and the materials used		1	1	0,15
C_2	Education and experience	1.10	0.90	1.11	0.16
C_3	Familiarity with administration	1.00	1.00	1.11	0.16
C_4	Flexibility	1.10	0.90	1.23	0.18
C_5	Risk assessment	1.00	1.00	1.23	0.18
C_6	Teamwork	0.90	1.10	1.12	0.16
				6.81	1.00

Table 3: Criteria weights – DM_2

As can be seen in Table 3, the most significant criteria in this case are the criteria C_4 – *Flexibility* and C_5 – *Risk assessment*. In Table 4, the weights of the criteria for the DM_3 obtained by applying Eqs. (1)-(4) are presented.

Criteria		s_j	k_j	q_j	w_j
C_1	Familiarity with the product and the materials used		1	1	0,16
C_2	Education and experience	1.20	0.80	1.25	0.20
C_3	Familiarity with administration	0.70	1.30	0.96	0.16
C_4	Flexibility	1.00	1.00	0.96	0.16
C_5	Risk assessment	1.00	1.00	0.96	0.16
C_6	Teamwork	1.10	0.90	1.07	0.17
				6.20	1.00

Table 4: Criteria weights – DM_3

According to the DM_3, the criterion C_2 – *Education and experience* stands out as the most significant.

In Tables 5, 6 and 7, the initial decision matrices are presented. Each matrix contains the estimations of the candidates relative to the six evaluation criteria. The assessment was performed by using the scale from 1 to 5, where 1 is the worst grade, and 5 is the best. Beside the given estimations and criteria weights, the decision matrices contain the *ppr* values for each *DM*.

		C_1	C_2	C_3	C_4	C_5	C_6
		max	max	max	min	max	max
	w_j	0.19	0.19	0.16	0.10	0.15	0.21
	ppr	*5*	*3*	*3*	*3*	*4*	*3*
Candidates	A_1	5	5	2	3	4	3
	A_2	4	3	5	3	3	3
	A_3	3	3	3	4	3	4
	A_4	1	3	2	4	2	2
	A_5	3	2	2	4	1	4
	A_6	2	2	4	3	1	4

Table 5: The initial decision matrix – DM_1

		C_1	C_2	C_3	C_4	C_5	C_6
		max	max	max	min	max	max
	w_j	0.15	0.16	0.16	0.18	0.18	0.16
	ppr	*3*	*4*	*2*	*3*	*3*	*2*
Candidates	A_1	4	4	4	2	3	3
	A_2	3	3	3	3	2	3
	A_3	2	4	3	4	2	4
	A_4	1	3	2	4	1	4
	A_5	2	2	2	4	2	3
	A_6	2	2	3	3	1	4

Table 6: The initial decision matrix – DM_2

		C_1	C_2	C_3	C_4	C_5	C_6
		max	max	max	min	max	max
	w_j	0.16	0.20	0.16	0.16	0.16	0.17
	ppr	*4*	*4*	*2*	*3*	*4*	*4*
Candidates	A_1	4	4	4	2	3	4
	A_2	3	3	4	3	4	5
	A_3	3	2	4	4	3	4
	A_4	2	2	3	4	2	5
	A_5	2	2	3	3	1	4
	A_6	2	3	3	3	2	3

Table 7: The initial decision matrix – DM_3

By applying Eqs. (6)-(12), the final results are defined and the rank of the considered alternatives, in this case the candidates, is determined. In Table 8, the final results for the DM_1 are presented in the case of the different values of γ.

	$\gamma = 0$		$\gamma = 0.5$			$\gamma = 1$		
	S_i'	*Rank*	c_i	S_i'	*Rank*	c_i	S_i'	*Rank*
A_1	0.0731	1	0.0627	0.0104	2	0.1254	-0.0522	2
A_2	0.0077	3	0.0392	-0.0315	3	0.0784	-0.0707	3
A_3	0.0673	2	0.0530	0.0143	1	0.1061	-0.0388	1

Table 8: The ranking of the candidates – DM_1

As the results show, the alternatives A_4, A_5 and A_6 are rejected during the procedure as unacceptable, and the first-ranked alternative according to the DM_1 is the alternative A_3, when $\gamma = 0.5$ and $\gamma = 1$. When primacy is given to the best alternative of all, i.e. when $\gamma = 0$, the alternative A_1 ranks the first.

	$\gamma = 0$		$\gamma = 0.5$			$\gamma = 1$		
	S_i'	*Rank*	c_i	S_i'	*Rank*	c_i	S_i'	*Rank*
A_1	0.2861	2	0.0726	0.2135	2	0.1451	0.1410	1
A_2	0.0741	3	0.0720	0.0022	3	0.1439	-0.0698	3
A_3	0.3620	1	0.1242	0.2379	1	0.2483	0.1137	2
A_4	0.0595	4	0.1349	-0.0754	4	0.2697	-0.2103	4
A_6	0.0178	5	0.1337	-0.1159	5	0.2675	-0.3147	5

Table 9: The ranking of the candidates – DM_2

The alternative A_3 is the best alternative according to the DM_2 when $\tilde{a} = 0$ and $\tilde{a} = 0.5$, but when $\tilde{a} = 1$, the best-ranked is the alternative A_1. The alternative A_5 is excluded from the list of the suitable alternatives during the procedure (Table 9).

	$\gamma = 0$		$\gamma = 0.5$			$\gamma = 1$		
	S_i'	*Rank*	c_i	S_i'	*Rank*	c_i	S_i'	*Rank*
A_1	0.3677	2	0.1189	0.2488	2	0.2378	0.1299	1
A_2	0.4017	1	0.1378	0.2639	1	0.2756	0.1261	2
A_3	0.2406	3	0.1170	0.1236	3	0.2340	0.0067	3
A_4	0.0394	4	0.0768	-0.0373	4	0.1536	-0.1141	4

Table 10: The ranking of the candidates – DM_3

According to the DM_3, the most adequate alternative is the alternative A_2 when $\gamma = 0$ and $\gamma = 0.5$, whereas when $\gamma = 1$ and when a priority is given to the alternatives satisfying the previously set *ppr* values, the alternative A_1 is the best-ranked alternative.

With the aim of defining the overall ranking order of the considered alternatives based on the evaluation of all the three *DM*s, WA operators are used. The WA operators are applied by using the following Eq.:

$$S_i'' = \frac{1}{n}\sum_{j=1}^{n} S_i', \tag{13}$$

where S_i'' stands for the overall performance rating of the alternatives according to all the *DM*s. The ranking is performed in ascending order and the optimal choice is the alternative whose S_i'' is the highest.

	$\gamma = 0$		$\gamma = 0.5$		$\gamma = 1$	
	S_i''	*Rank*	S_i''	*Rank*	S_i''	*Rank*
A_1	0.2423	1	0.1576	1	0.0729	1
A_2	0.1612	3	0.0782	3	-0.0048	3
A_3	0.2233	2	0.1253	2	0.0272	2
A_4	0.0330	4	-0.0376	4	-0.1081	5
A_5	-	-	-	-	-	-
A_6	0.0059	5	-0.0386	5	-0.1049	4

Table 11: The overall ranking of the candidates

The alternative A_1 is singled out as the best choice (Table 11), which is completely justified because the candidate A_1 always took the first or second position in all of the three observations, which is especially suitable when primacy is given to the alternatives with a better matching with the pre-set *ppr* values.

4. CONCLUSION

The selection of an adequate candidate is a very complex task that requires the perception and evaluation of every aspect important for a concrete workplace. The significance of the selection of the optimal personnel for performing the function of the quality control manager is also great because a certain person's education, ability, knowledge and skills have quite an impact on producing products of an adequate quality. Because evaluation and personnel selection are conducted based on certain criteria which are very often conflicting, the application of the MCDM methods is absolutely justified and desirable.

In this case of ours, the proposed framework for the selection of the quality control manager is based on the PIPRECIA and WS PLP methods. The PIPRECIA method is used for the criteria weight determination, while the final evaluation and ranking are performed by using the WS PLP method. The applicability of the given framework is tested by an illustrative numerical example pointed to the evaluation of the six candidates relative to the six evaluation criteria. With the aim of reducing subjectivity and gaining a more reliable decision, group decision-making is applied, i.e. the evaluation is conducted by three *DM*s. Bearing in mind the fact that bias is present in the decision-making process, its effects are in this way minimized, which automatically increases the trustworthiness of the final choice.

The key advantages of this paper reflect in the proposal for the application of a suitable model that will facilitate the decision-making process and increase the validity of the final decision. The prerogative of the PIPRECIA method is its simplicity and convenience for utilization in a group decision-making environment. On the other hand, the main advantage of the WS PLP method reflects in a possibility of making a selection between the alternative that better fits the established requirements and the alternative that has the best performance ratings of all of them and exceeds the pre-set conditions. Despite the fact that all MCDM methods more or less incorporate *DM*s' preferences, they are exactly expressed through *ppr* values in the WS PLP methods.

The application of crisp numbers is the main deficiency of this paper because vagueness and uncertainty are not incorporated in a proper manner. Besides, in this case, no sensitivity analysis is performed in order to test the stability of the proposed framework and its resistance to changing conditions. At the same time, the given disadvantages could be treated as proposals for the improvement of the given framework. Irrespective of the foregoing deficiency, its applicability in the field of personnel selection, i.e. the selection of a quality control manager in this particular case, cannot be denied.

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ON THE INFLUENCE OF FINANCIAL EDUCATION AT FINANCIAL LITERACY

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Abstract: *Accepting financial literacy, as one of the key competencies of the modern human, leads us to questions about the efficiency of financial education. The present paper seeks to determine the influence of economic education on university students and movements in their skills in financial education. It is based on a statistical analysis of the results before and after absolving the course. The research is concerned also in the changes in the attitudes of the course participants to the perception of the importance and self-appreciation of their own financial decision abilities. Particularly, recognizing the importance of being financially literate is determined as the fundamental factor for improving proficiency.*

Keywords: *Financial literacy, financial education, skills.*

1. INTRODUCTION

The turbulent development of the global economy has been markedly marked by the advent of new technologies in the last decade. By introducing them into life, new services, financial operations have emerged and overall complexity of products and services has increased. Their use has given impetus to economic growth, but our life has become more complex. Few people understand the risks we face when making the necessary financial decisions in personal and professional life. There has been a significant increase in financial and investment decision-making, which has highlighted the importance of financial literacy and the merits of financial education in all types of schools. At the turn of the millennium, [1] stated that "Financial literacy is a basic knowledge that people need in order to survive in a modern society".

One of the long-term roles of governments is to invest in human capital in order to make countries more competitive. This issue is closely related to measuring the value of human capital. „The problem is often the quantification of knowledge, abilities, skills, motivation, talent etc." [2]. Forms of increasing the value of human capital are expenditure oriented for example to health, safety, science, research and education. [3].

At present, there is broad support for financial literacy education by national governments on a global scale. If a large part of the population is in financial trouble and fails to pay its financial obligations, it is not just a social problem. It also has a hard impact on the economies of the countries. That is why study programs are being introduced to increase the financial literacy of the young generation, including at universities. The motive is to improve their current and future quality of life by providing financial education. This is not the only reason why to support financial education and thereby increase financial literacy. The low level of financial literacy is associated with poverty, high levels of personal debt, insufficient or no retirement plans, which are manifestations low living standards.

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2. UNIVERSITY EDUCATION AND A GLOBAL PERSPECTIVE ON FINANCIAL LITERACY

In the education system, universities are the bearers of economic progress and there is persistent pressure from the state to increase efficiency and improvement quality. In the future, it is expected "introduce radical changes in the pedagogy of education so as to meet the challenges outlined above by transforming themselves: from hierarchical organizations to participatory ones, from disciplinary to interdisciplinary teaching and research, from immediate needs to short and long-term sustainability, and from reactive to pro-active organizations" [4]. Effective performance of a university teacher involves not just the proper lecturing competence, but the application of the right methodological strategies to meet student's needs [5]. An important tool for improve the quality of university teacher's work and education process can be considered a feedback [6]. Students do not only have to be young people but also, within the framework of lifelong learning, employees who do „turn work hard, upgrade their existing knowledge and contribute in their own way to increase the productivity of their organization" [7]. In this context, it can be stated that „the universities have a crucial role to play in optimizing the way society is managed, in attaining the objective of ensuring major improvements in people's lives" [8].

In the US, UK, and other countries, there is a big burden on young student credits from study time and consumer credit. Young people yearn for a lifestyle that they and their family really do not have, and in their youth, they are creating „dependence" on debt. The survey [9] confirms „validate the fact that recent high school graduates are not knowledgeable about everyday financial matters. It would seem that the appropriate place to resolve this issue would be at the high school level. Or perhaps since this subject matter is so important to a college graduate, perhaps universities should regard financial knowledge as being a component to their general education program and require a course in personal finance of all its students".

Several studies have shown geographical differences in financial literacy [10] - [15]. Research [15] shows that financial literacy is strongly related to sociodemographic characteristics and family financial sophistication. This is confirmed by the [12] study, which found that Financial literacy and schooling attainment have been linked to household wealth accumulation and that investments in financial literacy could have large positive effects on household wealth accumulation. The relationship between financial literacy and selected socio-demographic characteristics is also confirmed by a study [16] carried out in a developing country. The survey was conducted on a sample of undergraduate and postgraduate students from a public university. "The paper found that age and work experience were positively related to financial literacy. Also, mother's education was positively correlated with respondents' financial literacy".

3. METHODS AND DATA

We collected the data for our analysis by the questionnaire survey method. Each of the respondents has been tested twice. The first round of the survey has run at the beginning of the course. The second round of similar test was realized after enclosing the course. In order to effectively map the possible progress in skills and knowledge, the same respondents have been asked in both rounds. By this method, we obtained two samples containing in the size of 106 students.

We have included two types of questions in the questionnaire. One part focused on the investigating of the socio-demographic data and as well as personal characteristics. In this part, we

collected information about the access of the respondents to this problematic, namely the importance they attribute to financial literacy and their self-assessment about financial decision abilities.

The second part contained a set of questions that focused on financial problems. These questions were presented with the multichoice answer options. One of them was correct, two answers were incorrect and the last option was „I don't know" answer. The problems covered more branches of the financial literacy as the time value of the money and inflation, investments and risks associated with investing, savings, and debt management.

The aim of our analysis was to compare the competences of the students before and after absolving the financial education and recognize if there is some progress in their knowledge. Due to the same composition of the group of respondents in both rounds, we have paired the samples, therefore we were able to apply the paired t-test. In order to illustrate the improvement after absolving the course, we have constructed the empirical cumulative distribution function and empirical density of the probability to attain a given score. This approach corresponds with the stochastic dominance rules.

4. RESULTS

The first step in the data analysis is the computing of the essential statistical characteristics of the average scores in both samples. The results are summarized in table 1. Here we can easily observe positive drift in all important statistics and quantiles.

Statistics before education		***Statistics after education***	
Mean	46,08%	Mean	52,83%
Median	46,15%	Median	53,85%
Minimum	15,38%	Minimum	23,08%
Maximum	76,92%	Maximum	84,62%
1-st quartile	38,46%	1-st quartile	46,15%
3-rd quartile	53,85%	3-rd quartile	61,54%

Table 1: Essential statistics of the average scores before and after absolving the financial course. (Source: own elaboration)

The expectations of the improvement, supported by the computed statistics can be further underlined by the empirical density and cumulated distribution functions. Their graphs are presented in figure 1. The significant shift to the right is easily visible in both cases. It means the higher probabilities of attaining the better scores. This statement we can definitely confirm by the paired *t*-test. The results of the test, summarized in table 2 show, that we reject the zero hypothesis with an extremely high confidence level.

If we have once confirmed that education in financial management and financial decision-making has a positive impact on the growth of financial literacy, we can look for other factors affecting this development. We selected two factors from the personal data we have collected in the survey. Specifically, we selected the perception of the importance and self-assessment of the respondents. The results are illustrated as the box plots in figures 2 and 3.

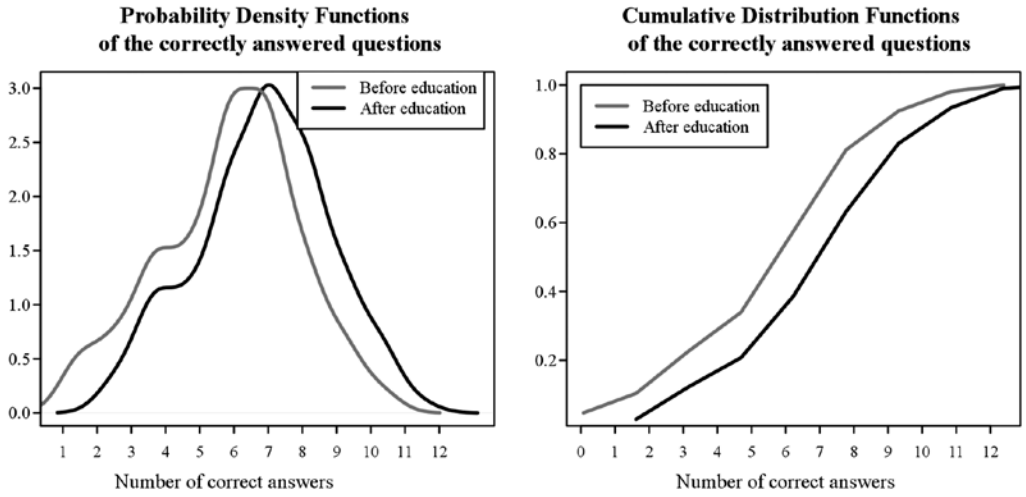

Figure 1: Empirical density function and empirical cumulative distribution functions of the average scores before and after absolving the course. (Source: own elaboration)

When realized	***Mean score***	***t-statistics***	***p-value***
Before course	46,08%	6.6903	$5.579 \cdot 10^{-10}$
After course	52,83%		

Table 2: Results of the paired *t*-test for zero difference of the average scores before and after completing the course. (Source: own elaboration)

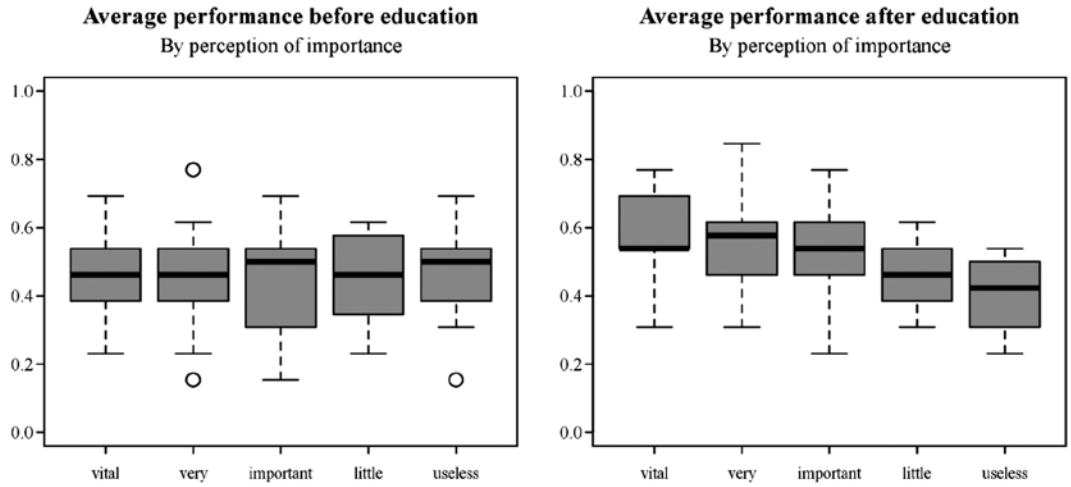

Figure 2: Box plots of the average scores before (left) and after (right) completing the course, categorized by the importance of the financial literacy perception. (Source: own elaboration)

From the graphs in figure 2, it is clear that there is significant growth in the average scores when the respondents attribute adequate importance to financial literacy. On the contrary, even those who underestimate the importance of financial literacy or absolutely do not fully recognize its importance we observe even the decline in the score. The exact numerical values are summarized in table 3. The greatest improvement is visible in the group of the respondents that attribute to the financial literacy vital or very important level. On the other hand, those who attributed only a little importance remains almost unchanged in their score. Respondents, that declared the financial literacy to be a useless produced decline in their results.

When realized	*Importance perception*				
	Vital	*Very important*	*Important*	*Little important*	*Useless*
Before	47,07%	46,15%	45,64%	44,75%	46,15%
After	58,15%	56,49%	50,51%	45,45%	40,38%

Table 3: Changes in the average scores before and after completing the course, categorized by importance level perception. (Source: own elaboration)

Graphs in figure 3 illustrate the changes in the average scores in the groups determined by the self-assessment of the respondents. We immediately see that the changes are not so obvious as in the case of categorization by the importance of financial literacy perception. However, we can conclude that respondents who were more critical in self-assessment achieved a more profound improvement. We can document it by the numerical values, summarized in table 4.

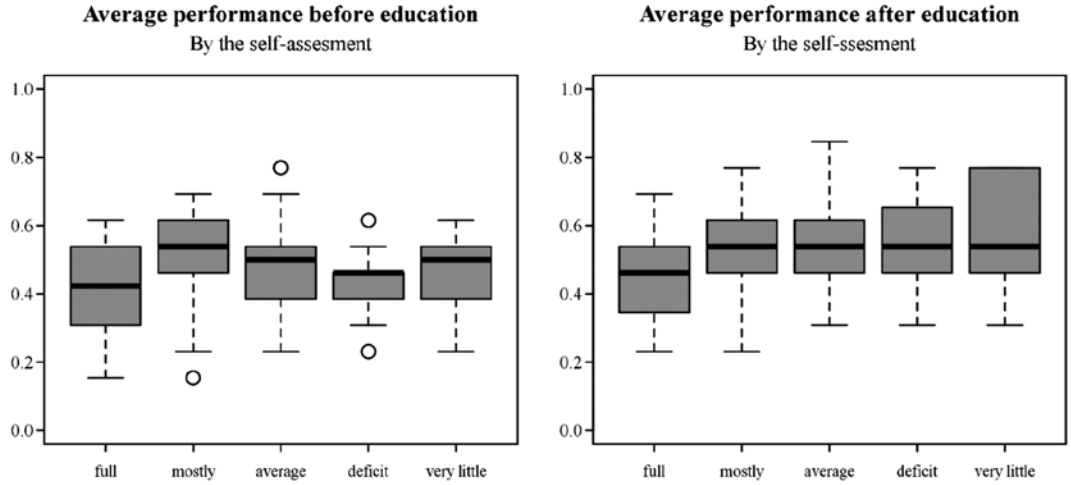

Figure 3: Box plots of the average scores before (left) and after (right) completing the course, categorized by the self-assessment of the respondents. (Source: own elaboration)

When realized	*Self-assessment of literacy level*				
	Full	*Mostly*	*Average*	*Some deficit*	*Not at all*
Before	39,62%	49,18%	48,46%	43,08%	46,15%
After	45,00%	53,61%	55,13%	54,36%	57,69%

Table 4: Changes in the average scores before and after completing the course, categorized by the self-assessment in financial literacy. (Source: own elaboration)

Let us now see the possible causes of this phenomenon. If we compare the groups created by the self-assessment criteria, we can observe, that importance perception is dramatically changed across these groups. Let us look at the self-assessment of the respondents in the groups, according to the importance they attach to financial literacy. We see that their self-esteem and the tendency to overestimate their own abilities go hand in hand with the underestimated importance of financial literacy. These changes are illustrated by diagrams in figures 4-8.

While on figure 4 we can see that none of the participants, that evaluate the financial literacy importance as vital feels fully literate, on figures 5-8 we can observe how this portion increases.

Finally, in figure 8, we see that a big majority of respondents, that find financial literacy to be useless feels to be fully literate. However, the results show that the opposite is true. These disproportions in the distribution by the self-assessment cause that the improvement is not so clear like in the case of the importance perception.

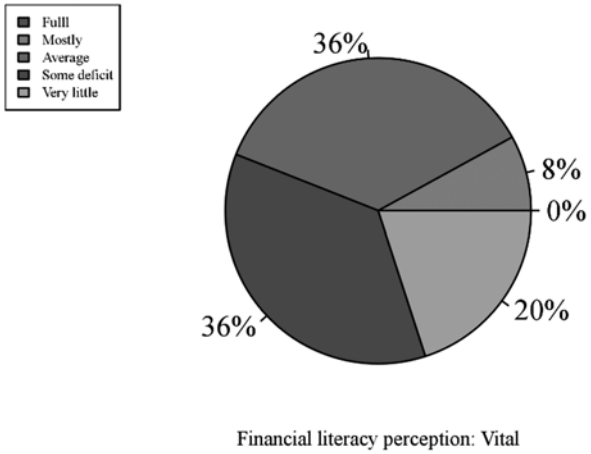

Figure 4: Self-assessment of the respondents who consider the financial literacy importance to be vital. (Source: own elaboration)

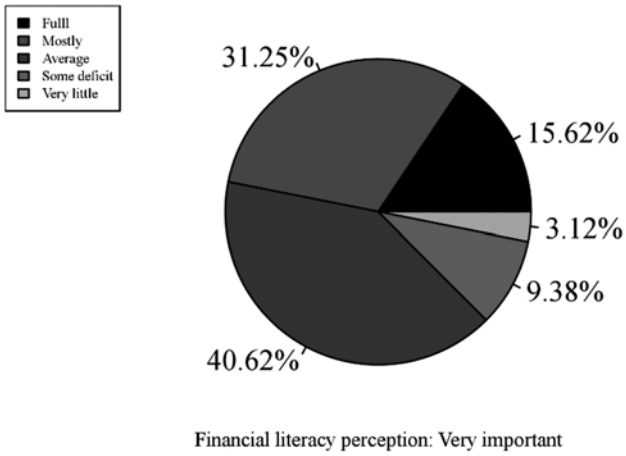

Figure 5: Self-assessment of the respondents who consider the financial literacy importance to be very important. (Source: own elaboration)

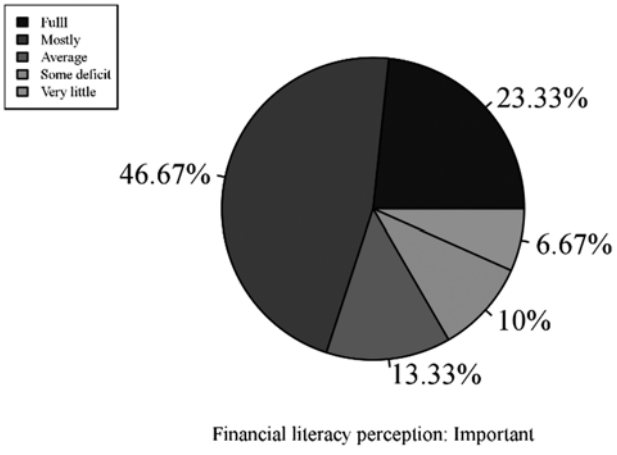

Figure 6: Self-assessment of the respondents who consider the financial literacy importance to be important. (Source: own elaboration)

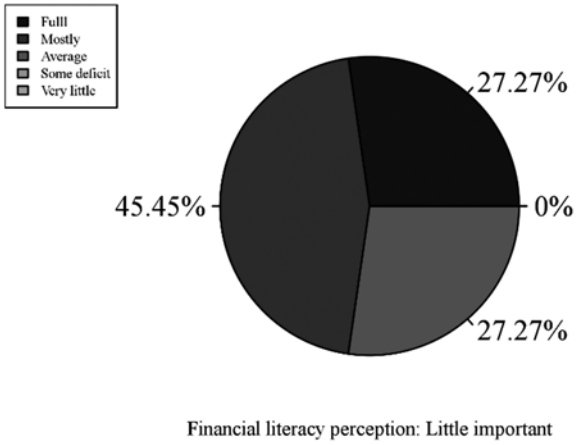

Figure 7: Self-assessment of the respondents who consider the financial literacy importance to be little important. (Source: own elaboration)

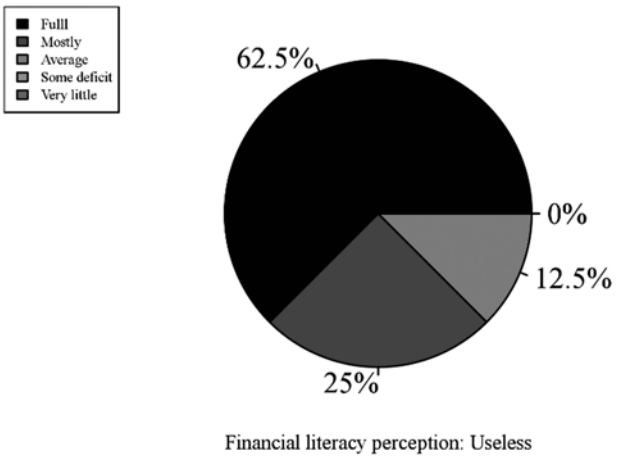

Figure 8: Self-assessment of the respondents who consider the financial literacy importance to be useless. (Source: own elaboration)

5. CONCLUSION

Our research has confirmed several important facts. Like the first, it confirmed, that students coming at the university after finishing high school have under average financial competences. This result corresponds with [9]. As the second fact, we have proved the positive influence of financial education on the growth of the abilities. Further, we have seen that the most important factor supporting the improvement in financial literacy level is comprehending its enormous importance. Moreover, underestimating of the importance leads to dangerous overestimation of own abilities. This is in accordance with findings published in [17]. The authors stated here, that "Here prevails some unhealthy self-confidence and overestimating of their real abilities. Respondents who feel full or predominantly financially literate do not achieve better results than others." All these facts together show the needy of inclusion of a similar subject in the training program. It should primarily address real decision-making problems in order to clarify the importance of orientation in the world of finance. Only in the second place is the acquisition and expansion of knowledge itself.

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IMPACT OF NON-LINEAR VOLATILITY IN STOCK-SPECIFIC RISK ON THE TURNOVER OF ACTIVELY MANAGED PORTFOLIOS

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Abstract: *Active investment has been established as one attractive approach for portfolio management. In order to achieve additional return – alpha, it requires investors to rebalance their portfolios often and to apply it for broader set of assets. However, as a result of such strategy portfolios could be exposed to an enormous turnover which leads to higher transaction costs. In many cases models with proven high-quality fail to provide the projected alpha because of alpha decaying caused by transaction costs of high turnover.*

Our paper is aimed to give more details about influence of stock-specific risk on turnover of active investments. We find that the ratio between target tracking error of the portfolio and stock-specific risk of an important factor in establishing the optimum turnover (and transaction costs). We investigate how this ratio is related with the turnover and how it influences the portfolio optimization process. We prove that changes in stock-specific risk causes managers to rebalance their portfolios in order to achieve their target tracking error. It is shown that these changes occur due to the non-linearity of stock volatility. We use GARCH model to measure the impact of short-term volatility shocks on the turnover of portfolio. Our findings confirm the importance of non-linear volatility for active portfolio turnover. Furthermore, we present empirical example for keeping turnover in desired level by adjusting the target tracking error of the factor portfolio.

Keywords: *turnover, non-linear risk, transaction costs, alpha.*

1. INTRODUCTION

Active portfolio management is a well-established approach for making investment decisions in portfolio theory and practice. Its logic can be described by this simple formula developed by Grinold in [1].

$$E(r_i) = \sigma_{r_i}\ IC\ z_i \tag{1}$$

where

$E(r_i)$ is the expected additional active return - alpha;
σ_{ri} – individual stock specific risk;
IC – information coefficient
z_i – standardized risk-adjusted scorings;

(1) presents the main idea of active management – higher expected return can be achieved if the stock diverts enough from the benchmark (σ_{ri}), if the forecasting factor gives enough explanatory power (IC) and if the factor has positive value for that stock resulting in higher score for it (z_i). Each of these 3 indicators is variable during the time t for every stock i in portfolio. This means

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that whenever some of the three factor changes its values new opportunity for alpha appears. To benefit from this opportunity, portfolio managers should rebalance their portfolio according to the factor's signal. That gives specific feature of the active management – to be active. Managers constantly must rebalance their portfolio by increasing/decreasing the weights in those stocks which experience positive/negative changes in indicators from (1) which means to buy or sell some stocks. This activity causes turnover and transaction costs. Therefore, investors meet enormous collision in objectives of their management. From one side, to maximize alpha they must use every opportunity for alpha by changes the weights of assets whenever factors from (1) change; from other side, because alpha can be decaying from transaction costs management should minimize changes in the weights.

In this paper we concentrate our attention on the problem with transaction costs of active portfolio management caused by high turnover. We verify the previous theoretical findings that portfolio turnover is dependent on the autocorrelation of the forecasting factor. Furthermore, we find that non-linear volatility in stock-specific risk is correlated with the active portfolio turnover. Incorporating our findings, we empirically test how to control the ratio between target tracking error and stock-specific risk in order to maintain desired level of portfolio turnover.

2. THEORETICAL REVIEW

Qian, Sorensen and Hua (QSH) in [2] prove that transaction costs should be directly integrated into alpha optimization modeling as an indigenous factor. They apply unconstrained mean-variance optimization for active portfolio. Assuming that all stock specific active risks are constant and the number of stocks is unchanged, they present that the optimal active weight of each stock in the portfolio should follow the pattern of (2)[3].

$$w_i^* = \frac{z_i}{\sqrt{N-1}} * \frac{\sigma_{TE}}{\sigma_{r_i}} \tag{2}$$

where:

w^*_i is the optimum active weight of asset i in portfolio;
σ_{TE} – targeted active risk (tracking error) of the portfolio;
N – number of stocks in portfolio.

In [2] QSH concentrated their interest on the correlation between forecasts and . Their main contribution is the proof that the portfolio turnover is an algebraic function of one-leg autocorrelation in forecasts and as such it is an important diagnostic for evaluating factors. However, in their paper QSH assume that the stock-specific risk is constant. They even assume that this risk is the same among the all stocks. By this way they exclude from their analysis the changes in stock-specific risk as a factor influencing turnover. However, (2) is fundamental for our research. Here, for the first time we observe an important relationship – the optimum active weight depends on the ratio between target active risk for the portfolio and stock specific risk. This ratio has strong economic meaning – it presents the ratio between what the managers target as an active risk and the quality of what they have as an available material (risk of the stocks) to build their portfolio - .

[3] In (2) we changed the places of and without changing the logic of original QSH's formula. We also use risk-adjusted scorings instead of originally introduced risk-adjusted forecasts. This substitution doesn't change the results and conclusions.

During the process of developing the theory of active portfolio management authors usually assume constant IC. First Qian and Hua in [3] and later Ye in [4] introduced the idea of the volatility of IC - . The final and most general explanation of this risk has been given by Ding and Martin in [5]. They argue that the total active portfolio risk involves three parts: (1) stock-specific risk of the asset, involved in the portfolio, factor risk, presented by , (2) factor risk presented by and (3) strategy risk presented by the dispersion of the errors in cross-section regression of forecast - . In our previous study [6] we prove that Ding and Martin's variant measures total active risk more accurately and therefore must be always taken into consideration in active portfolio management. This is especially valid for active management turnover.

Ding, Martin and Yang (DMY) in [7] develop QSH's model involving in it another risks - factor risk and strategy risk. We present the formula - (3) slightly changed from its original form by rewriting in the same manner as in (2).

$$w_i^* = \frac{z_i}{N\sqrt{\frac{1-\mu_{IC}^2-\sigma_{IC}^2}{N}+\sigma_{IC}^2}} * \frac{\sigma_{TE}}{\sigma_{r_i}} \tag{3}$$

where

μ_{IC} is the average time series IC of the model.

In (3) the two new elements of active risk are involved in the enumerator of formula for optimal stock weights and present there with element . DMY explained that this formula is in fact more general variant of (2). If we assume the only difference between (2) and (3) is that in the latter presents N instead of N-1. Obviously, DMY develop with (3) more general explanation of factors influencing the optimal weights of assets in active managed portfolio. Additional to previous 4 factors, described by QSH – N, , and , here we see another important factor - . The larger the factor risk is the lower the weight of this stock in the portfolio is. Logic behind this relationship is that whenever there is uncertainty in the forecast results, managers try to stay closer to benchmark weights. In [7] DMY scrutinize farther this relationship. However, they again do not go deeply in the role of for portfolio turnover.

For us (3) again, as in (2), shows importance of the ratio. We try to investigate what is the influence of this ratio on the turnover of actively managed portfolio. To do so we have to observe how the weights are changing with changes in . Every change in weghts leads to transaction costs. Therefore, if we observe changes in weights caused by the changes in stock-specific risk, this will be serious sign of increasing the turnover and transaction costs.

3. METHODOLOGY

To find the role of risk changes we allow in (3) the stock-specific risk to change and all the factors stayed the same. We can rewrite (3) into (4).

$$| w_{i(t)}^* - w_{i(t-1)}^* | = \frac{z_{it}}{\sqrt{\frac{1-\mu_{IC}^2-\sigma_{IC}^2}{N}+\sigma_{IC}^2}} * \frac{\sigma_{TE}}{|\sigma_{r_{i(t)}} - \sigma_{r_{i(t-1)}}|} \tag{4}$$

Formula (4) is fundamental for our research. It shows that every change in individual will result in changes in the weights urging portfolio managers to sell or buy that stock and this will cause transaction costs.

As a first step of our research we calculate the turnover for our hypothetical portfolio on TWSE with our selected factors for forecast[4]. We apply (4) to find what is the monthly turnover according to DMY's model – column 6 of Table 1. First, we observe serious differences in the turnover between the three groups of factors: while the fundamental factors require turnover between 7.2% up to 28.2% (for TO and ROE), the technical factors require turnover between 160.1% and 201,1%. This result is according the theory developed in [2] which stays that factors with lower autocorrelation will produce high turnover – because such factors change often in (4).

Factor group	Factor	IC	σ_{IC}	Factor Autocorrelation	QHS Turnover	DMY Turnover
	(column 1)	(column 2)	(column 3)	(column 4)	(column 5)	(column 6)
Fundamental factors	FF-EBA	0.073	0.253	0.997	16.4%	8.5%
	FF-NM	0.057	0.205	0.993	25.5%	15.2%
	FF-OM	0.046	0.218	0.996	20.1%	11.5%
	FF-ROA	0.083	0.243	0.995	21.5%	11.4%
	FF-TO	0.017	0.268	0.998	14.6%	7.2%
	FF-ROE	0.103	0.197	0.978	45.9%	28.2%
Technical factors	TF-20DM	0.033	0.172	0.042	304.1%	201.7%
	TF-30DM	0.035	0.193	0.294	261.1%	162.1%
	TF-BOL	-0.030	0.184	0.096	295.4%	188.4%
	TF-MA	0.029	0.176	0.069	299.8%	196.3%
	TF-PP	0.025	0.194	0.305	259.0%	160.1%
Market factors	MF-BP	-0.028	0.182	0.990	31.4%	20.1%
	MF-EP	0.092	0.195	0.958	63.8%	39.3%
	MF-SP	-0.014	0.199	0.995	22.4%	13.6%

Table 1: Turnover for TSE Portfolio

We compare this turnover with the turnover calculated by QSH's model[5] – presented in column 5. The QSH's turnover is dramatically higher than those from DMY model. This is result of involvement of factors risk in (4). Because there is higher uncertainty in forecasts, managers do not change aggressively the weights of the stocks. This result confirms the advantages of DMY model because it gives results more closely to applied in investment practice turnover, and in our paper, we follow it.

4. NON-LINEARITY ON STOCK-SPECIFIC RISK AND ITS MANAGEMENT

According to (4) additional turnover arises when investors change their expectation for stock-specific risk from to . In portfolio practice a difference in expected stock-specific risk appears and it is due to the non-linear volatility. This phenomenon is well-researched topic in empirical finance. Most common approach to examine non-linear volatility are GARCH models, initially developed by Bollerslev in [8]. Using the GARCH (1,1) model we get the change in expected risk – (5)[6]:

$$\Delta\sigma_{t+1}^2 = \alpha * (\epsilon_t^2 - \epsilon_{t-1}^2) + \beta * (\sigma_t^2 - \sigma_{t-1}^2) \quad (5)$$

[4] For the portfolio and factors see Appendix 1.

[5] The turnover according QSH' model (2) has been calculated in the same manner as (4) for (3) - $|w^*_{i(t)} - w^*_{i(t-1)}| = \frac{z_{it}}{\sqrt{N-1}} * \frac{\sigma_{TE}}{|\sigma_{r_{i(t)}} - \sigma_{r_{i(t-1)}}|}$

[6] The detailed derivation is given in Appendix2.

We prove this GARCH effect on the turnover with our factor portfolios. Figure 1 shows the correlation between each stock's turnover within the factor portfolios and their GARCH -parameters.

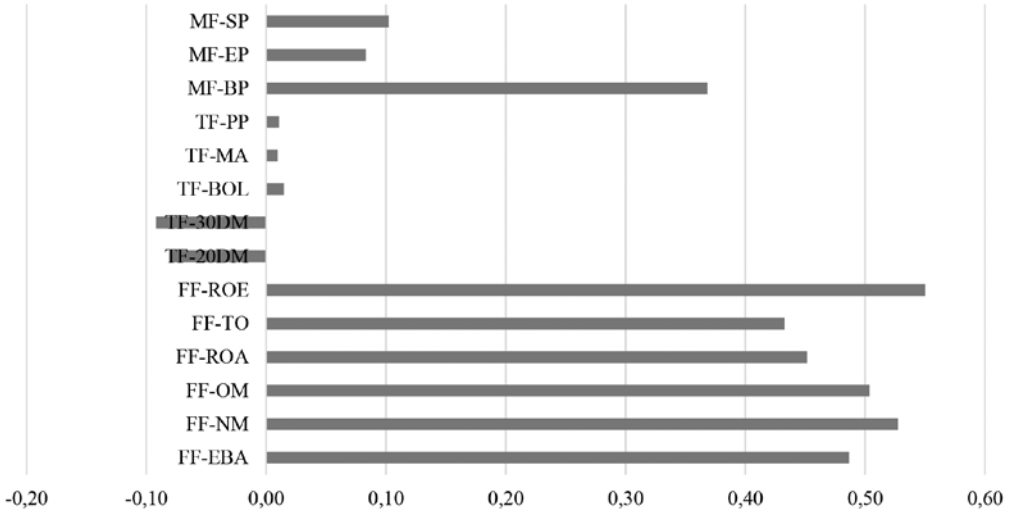

Figure 1. Correlation between stock turnover and -parameters from GARCH by different factor portfolios

Evidently, there is a strong positive correlation between the -parameter of the GARCH equation and the turnover of the stock. This means that stocks with higher sensitiveness to volatility shocks tend to require higher turnover within the factor portfolio. The only exceptions are the technical factor portfolios where there is no correlation between the two variables. This is explained by the nature of these factors[7]. Whenever there are volatility shocks on the market this requires managers to change the weights of actively managed assets in order to keep their goals. Therefore, the practice of assuming linearity in stock-specific return is not correct and can lead to higher than expected turnover which will decay active returns.

According to DMY investors can control the active portfolio turnover by changing the target tracking error. In essence, the is a parameter that governs the amount of additional risk that the active portfolio takes. In equation (4) there is very useful ratio between and the average expected stock-specific risk. Keeping this ratio constant, according to (4) will result in no-additional turnover due to non-linear volatility. Therefore, when we relax the assumption of linear stock-specific risk then investors must correct their target tracking error to compensate for the change or must bear the transaction costs on this additional turnover. For example, if volatility shock happens then for the next period it is necessary to raise the target portfolio risk to sustain the desired level of turnover and trading costs. Oppositely, if there is lower expected stock-specific risk then investors need to cut the .

In our investment universe the stock-specific risk is declining. This means that to sustain the turnover at certain level the target also must be decreased. This approach to portfolio construction process is very intuitive, because the mean-variance optimization can produce optimal portfolio for desired alpha return. Then by controlling turnover with the help of investor can decide what portion of the expected alpha return to be spend as transaction costs.

[7] Technical factors rely on forecasting price movements with only market information and when volatility shock happens then usually technical factors change their behavior. However, this is only one possible explanation, thus this issue must be studied further in future research.

Next, we show the estimated target portfolio for each of the factor portfolios. The settings assume that half of the expected alpha to be sacrificed as transaction costs. For comparison purposes we optimize each factor portfolio to have 3.66% expected annual alpha and this suggests desired turnover level of 30% in each month (rebalancing period). The results are presented in Figure 2.

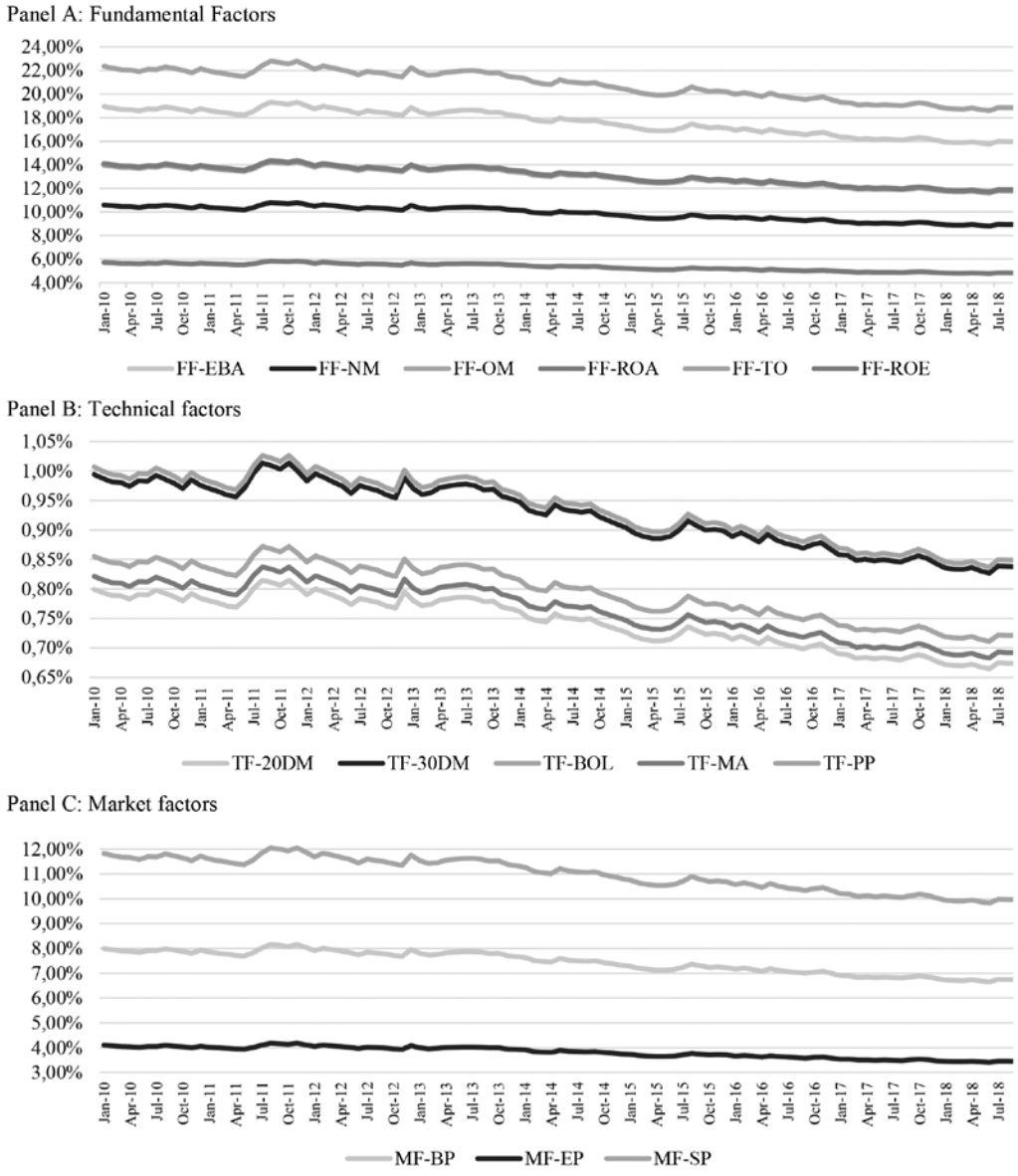

Figure 2. Changes in required to keep constant turnover of each portfolio at 30%

Following the decrease in stock-specific risk, there should be corresponding lowering of the across factors in order to keep constant. For example, for FF-OM managers must shift the from 10.3% to 12.4% in order to keep 30% turnover. The most volatile change is in the technical factors because their inherently higher turnover makes the impact of non-linear volatility bigger. In absolute terms the fundamental factors require higher change in . It is because these portfolios have less strategic risk. This allows managers of such portfolios to target higher levels . As a result, the impact of non-linear volatility is higher in absolute terms. The average standard deviation compared to the mean of the is just over 6%. This means that to sustain the desired turnover investors must shifts in by an average of 6%. This subtle change does not seem a lot, however if the incurred transaction costs are accumulated across the full periods they can "eat" big portion of the alpha return.

5. CONCLUSION

We analyze the models given by QSH and DMY for estimating the turnover. DNY's model provides more precise evaluation of turnover because it takes into consideration factor risk. We prove that this cases a sufficient difference between results of the two models.

We prove that the popular investment practice of assuming linearity in stock-specific risk is not correct and can lead to higher than expected turnover which will cause decaying of active returns. In order to be more precise in establishing the turnover the GARCH effect of stock-specific risk should be involved in portfolio risk models. For our stock sample we observe strong positive correlation between the -parameter of the GARCH equation and the turnover of the stocks. Stocks with higher sensitiveness to volatility shocks tend to require higher turnover and therefore this will case deeper alpha decaying for that portfolios.

We suggest that in order to manage the volume of turnover portfolio managers must keep ratio constant. This means that whenever because of non-linearity the stock-specific risk changes they have to provide opposite changes in . In our stock sample managers must change their target with about 6%. Our result can help portfolio managers to adjust their strategy in order to prevent alpha decaying in their portfolios.

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APPENDIX 1:
Market, Index and Factors Selected for Tests

For testing the non-linear volatility of stock-specific risk over active management we select Taiwan stock Exchange (TWSE). TWSE has been chosen because its market characteristics – efficient enough which makes it part of developed markets but with high volatility which is more typical for emerging markets in Southeast Asia. This makes it perfect for testing the influence of diverse factors over diverse type of stocks.

As a benchmark of our portfolio the index TSEC 50 has been chosen. We chose this index because it is not too broad from one side but involves enough variety of stocks to be forecasted. As some of the stocks do not fulfil criteria to be involved in the portfolio (like fundamental and market data availability) we exclude 6 of the stock resulting with 44 stocks in our benchmark portfolio. We assume that this 44 – asset portfolio will be managed actively according (4). The weight of one stock increases from the weight of the same stock in the benchmark if: (a) the score for it according the signal from the factor increases, (b) the target portfolio risk increases, (c) the autocorrelation in the factor decreases and (d) factor risk decreases. Number of stocks is assumed constant – 44. Our sample period is January, 2010 to September, 2018. Rebalancing of the portfolio is done every month.

Factor group	Factor Symbol	Factor Name	Source of information
Fundamental factors	FF-EBA	EBITDA to Assets	Income statement and Balance sheet
	FF-NM	Net Margin	Income statement
	FF-OM	Operating Margin	Income statement
	FF-ROA	Return-on -Asset	Income statement and Balance sheet
	FF-TO	Total Asset Turnover	Income statement and Balance sheet
	FF-ROE	Return on Equity	Income statement and Balance sheet
Technical factors	TF-20DM	20-days Moving Average	Market
	TF-30DM	30-days Moving Average	Market
	TF-BOL	Bollinger bands	Market
	TF-MA	Price Moving Average Signal	Market
	TF-PP	Price Pivot Points Signal	Market
Market factors	MF-BP	Book-to-Price	Market and balance sheet
	MF-EP	Earnings-to-Price	Market and Income statement
	MF-SP	Sales-to-Price	Market and Income statement

Table A1: Factors used for establishing monthly scores for each stock from benchmark portfolio

We use three types of factors to establish for each stock. First group is fundamental factors. We use information from financial statements to score each stock. Because the statements are announced quarterly stays unchangeable for 3 months. This leads to high autocorrelation in signals as it is shown in column 4 of Table 1. Characteristics of these factors result in sufficiently low turnover for portfolios constructed on these factors.

Second group is technical factors. These factors are used by technical investment analysis for developing trading strategies. The source of information is only from stock price. This gives a characteristic of extremely actively changed indicators – practically they can be changed every millisecond. For the purpose of active portfolio management, we apply daily data for the prices of the stocks. Although the indicators are calculated on daily basis, we use only ones per month to rebalance the portfolio – this is done to keep comparability with other factors. Because of their extremely changeability the auto-regression of the factor forecasts is very low resulting in very high level of turnover – column 6 of Table 1.

Third group factors are combination between the first two. They are based on the market multipliers Price-to-Book, Price-Earning and Price-to-Sells ratios but in their reciprocal variant. These indicators combine the two sources of information – the fundamental (financial statements) and the price. This gives characteristic of modest activity and therefore – modest turnover.

APPENDIX 2:
How non-linear volatility impacts expected stock-specific risk

The standard GARCH (1,1) model for stock-specific risk at moment *t* takes the form of (A1):

$$\sigma_t^2 = \omega + \alpha * \epsilon_{t-1}^2 + \beta * \sigma_{t-1}^2 \quad \text{(A1)}$$

where:

ω – variance intercept parameter or unconditional sample variance (constant for all periods);
α – parameter governing the effect of recently realized unexpected volatility (shocks);
ε^2_{t-1} – realized unexpected volatility in the previous period;
β – parameter governing the effect of recently expected volatility;
σ^2_{t-1} – expected volatility in the previous period;

Similarly, the expected stock-specific risk at period t+1 is:

$$\sigma_{t+1}^2 = \omega + \alpha * \epsilon_t^2 + \beta * \sigma_t^2 \quad \text{(A2)}$$

Therefore, the difference in expectations from one period to another is:

$$\sigma_{t+1}^2 - \sigma_t^2 = \omega + \alpha * \epsilon_t^2 + \beta * \sigma_t^2 - \omega - \alpha * \epsilon_{t-1}^2 - \beta * \sigma_{t-1}^2 \quad \text{(A3)}$$

Rearranging (A3) it we get equation (A4) which is (5_ in the main text):

$$\Delta\sigma_{t+1}^2 = \alpha * (\epsilon_t^2 - \epsilon_{t-1}^2) + \beta * (\sigma_t^2 - \sigma_{t-1}^2) \quad \text{(A4)}$$

ANALYSIS OF PROFIT AND LOSS STATEMENT OF THE LISTED COMPANIES IN CROATIA

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Abstract: *The efficiency of business results of listed companies is significant for investors. If total revenues increase from the year to year, especially business revenues from regular activities, investors receive a positive result of their investment. However, investors pay special attention to the efficiency of costs management, especially of operating expenses to create a revenue. If companies have a bigger increase in revenue than in business expenditures, the management and the investors are satisfied. If lower growth in expenditures is accompanied by faster growth of revenue, management and investor can expect a good reward, bonus or dividends. The main goal of this paper is to determine how successful are managers of listed companies on the Zagreb Stock Exchange for the selected business year in the research period from 2008 to 2017 in increasing of profits of shareholders in the way to maximize the revenues and minimize the expenditures and have they managed to achieve results prior to the financial crisis. The data are processed statistically with the SPSS programme. Vertical analysis of companies listed at the Zagreb Stock Exchange has pointed out a need for improvement of revenues from regular business, i.e. sales. Horizontal analysis of listed companies shows that proportions of the profit and loss statements from 2008 have not yet been achieved. Also, the cost-effectiveness indicators show that a company's management is a little bit more efficient today than in the past, but the reason is financial revenue, and not the increase in sales operation.*

Keywords: *Profit and loss statement, cost-effectiveness indicators, revenue, expenses, sales revenue, profit.*

1. INTRODUCTION

Instability of markets under the influence of constant crisis leaves a mark on a company's business. Companies which are listed on stock exchanges have to constantly improve their business activities and realize positive results in order to keep existing shareholders, but also to attract new ones.

Shareholders are particularly interested in good business performance of the company because a constant increase of share value also enables the growth of their wealth, as well as the growth of the paid dividend. It is therefore in the interest of every shareholder that the company maximizes profit, so their dividends could get as high as possible. Profit and loss statements is therefore in the best interest of shareholders, as well as managers.

The main goal of this paper is to determine how successful are managers of listed companies in the Zagreb Stock Exchange in increasing of profits of shareholders in the way to maximize the revenues and minimize the expenditures in the research years, and if they have managed to achieve results prior to the financial crisis.

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2. CONCEPTUAL FRAMEWORK

Companies prepare and submit financial statements in accordance with International Financial Reporting Standards (IFRS). International Accounting Standards (IAS) [1] prescribe a complete set of financial statements. The profit and loss statement is one of them. In Croatia, according to the Accounting Act [2], all large companies and all companies listed at the Zagreb Stock Exchange need to prepare their financial statements according to the IFRS. Listed companies use the same accounting standards, but they can choose some different way of measurement of some items like depreciation and amortization. Most companies listed at the Zagreb Stock Exchange, 99,07% of them, use the straight-line method [3].

The profit and loss statement "is a summary of profitability of the company over a period of time, such as a year" [4]. It presents revenues and expenditures generated during an operation period. "It is useful to distinguish four broad classes of expenses: cost of goods sold, which is a direct cost attributable to producing of a product sold by the company; general and administrative expenses" [5]. „Expenses recognised in profit or loss should be analysed either by nature [6]. The profit and loss account gives us a picture of a company's performance and future prospects. „If Pepsi's balance sheet resembles a snapshot of the company at a particular time, its profit and loss account is like a video. It shows how profitable the company has been during the past year" [7].

Shareholders get their first impression on business results based on net profit. Shareholders can notice that companies „realize a positive business profit, but negative net profit due to the effect of financing of expenditures and extraordinary expenditures...or...positive net profit as a result of extraordinary income, but at the same time business profit is negative" [8]. Due to the above mentioned it is necessary to do a vertical and horizontal analysis of the profit and loss account.

One of the business indicators which uses information from the profit and loss account is also the indicator of cost-effectiveness. „Cost-effectiveness indicators measure the ratio of income and expenditures and show the income realized per unit of expenditure" [9]. Desirable value of these indicators is greater than 1. In that case, income is greater than expenditure, which means for the company that it operates profitably. With these indicators we conclude does a company perform business operations cost-effective (>1) or not (<1).

Cost-effectiveness indicators are calculated on the basis of indicators listed in Table 1.

Description	Numerator	Denominator
Cost-effectiveness of total business operations - ETB Ratio	Total revenues	Total expenses
Cost-effectiveness of sales business of cost-effectiveness of operative business - EOB Ratio	Sales revenues	Sales expenditures
Financing cost-effectiveness – EFO Ratio	Financial revenues	Financial expenditures

Table 1: Cost-effectiveness indicators [10]

Profit and loss account analysis is mostly performed on the level of individual companies, as well as in the paper Vujević & Balen, in which it was found that the cost-effectiveness of a regular boat line is bigger than the cost-effectiveness of the whole business operations of a maritime transport company, namely in 2003 for 19.62%, in 2004 for 19.11% and in 2005 for 16.09% [11].

3. THE GOALS, BASIS, AND HYPOTHESIS OF THE RESEARCH

The research described in this paper is based on information obtained from the financial statements of 96 companies listed on Zagreb Stock Exchange in 2017, 2012 and 2008.

For statistical testing of main goal is use three statistical hypotheses.

The first statistical hypothesis:

H0: There is not a statistically significant difference in the cost-effectiveness of total business operations - ETB ratio depending on which year ratio is calculated.

H1: There is a statistically significant difference in the cost-effectiveness of total business operations - ETB ratio depending on which year ratio is calculated.

The second statistical hypothesis:

H0: There is not a statistically significant difference in the cost-effectiveness of sales business of cost-effectiveness of operative business - EOB ratio depending on which year ratio is calculated.

H1: There is a statistically significant difference in the cost-effectiveness of sales business of cost-effectiveness of operative business – EOB ratio depending on which year ratio is calculated

The third statistical hypothesis:

H0: There is not a statistically significant difference in the financing cost-effectiveness – EFO ratio depending on which year ratio is calculated.

H1: There is a statistically significant difference in the financing cost-effectiveness – EFO ratio depending on which year ratio is calculated.

For the statistical analysis, this paper uses Descriptive Analysis, Nonparametric test like as Friedman test and Wilcoxon signed-rank test. In Wilcoxon signed-rank test, a new significance level is 0.017, according to Bonferroni correction. The statistical study used the software IBM SPSS.

4. EMPIRICAL RESULTS

The research included 96 companies listed on Zagreb Stock Exchange in 2017, 2012 and 2008. In Chart 1 is visible that 29% of companies are coming from touristic sector, 21% from other than food production sector and 18 % from food production sector.

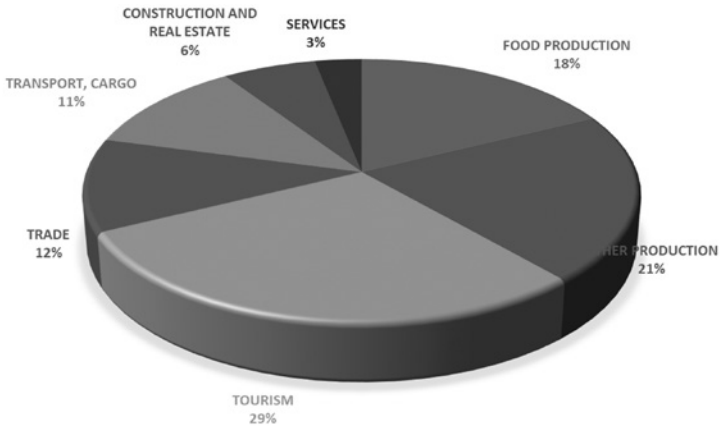


Chart 1: The Activities of the Listed Companies

Most important elements of profit and loss account are total revenue, total expenditures, sales revenue, operating expenditures, financial revenues, financial expenditures and net profit. The main elements of profit and loss account of researched companies for 2008, 2012 and 2017 are visible in Chart 2. All elements have the highest values in 2008.

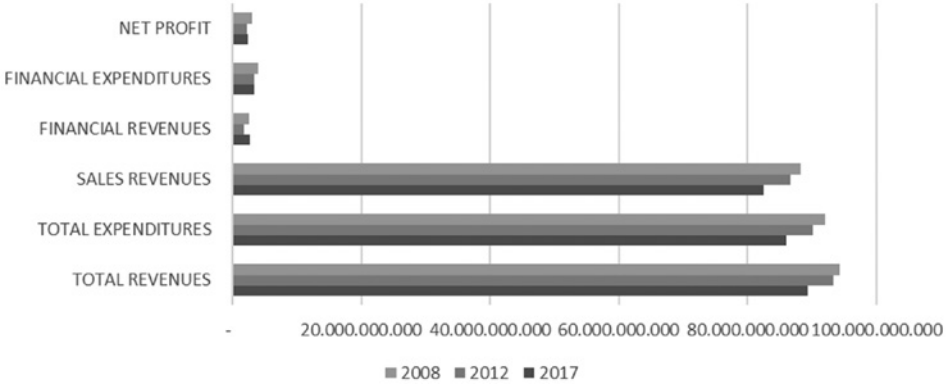


Chart 2: The basic characteristic of Profit and Loss Statement of listed companies

The horizontal analysis of profit and loss statement of listed companies is shown in Table 2. The horizontal analysis shows that the main elements like total revenue, total expenditure, sales revenue and financial expenditure have not reached observed years. Increase in financial revenue takes place due to the fact that companies consolidated their financial assets at group level. Net profit has increased by 4% in 2017 according to 2012 because tax decreased from 20% to 18% or 12% in 2017.

YEAR	TOTAL REVEN.%	TOTAL EXPENS. %	SALES REVEN. %	FINANC. REV. %	FINANC. EXP. %	NET PROFIT %
2017/2012	96	95	95	153	99	104
2017/2008	91	93	93	106	83	78
2012/2008	95	98	98	69	83	75

Table 2: The Horizontal Analyses of Profit and Loss Statement of listed companies

For all investors, net profit is the most important element of profit and loss statement. Net profit is the main source of investor's dividends. Chart 3 shows the only investors in companies in food production. Tourism and trade activities could expect some dividends in all three years.

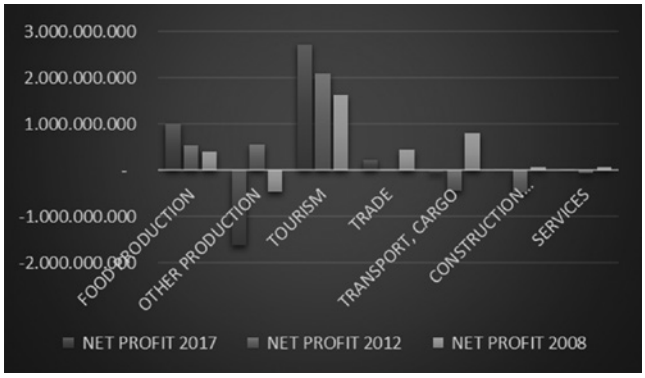
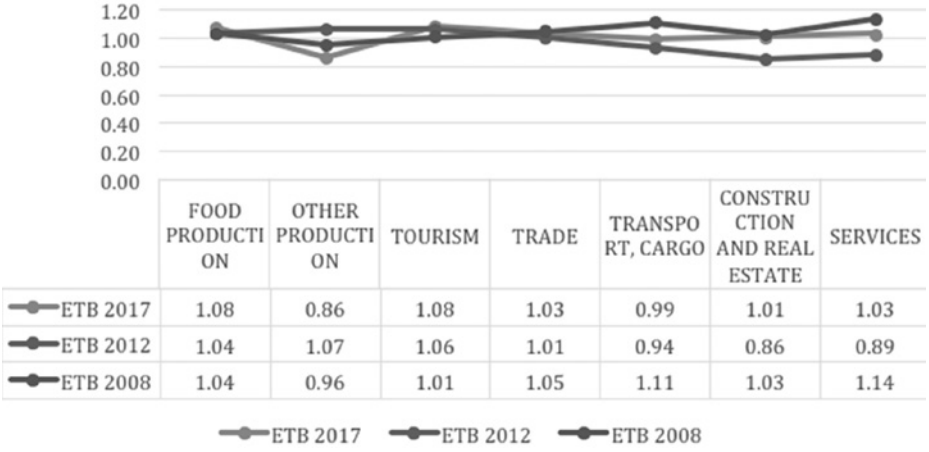


Chart 3: Net profit of listed companies according to the activities

The average ratio of total revenues and total expenses of researched companies listed in 2017 and 2012 is 1.04 and in 2008 it is 1.02. The ratio according to the activities is visible in Chart 4. The

ETB ratio in food industries, tourism and trade activities shows a ratio bigger than 1 in all three years. The amount of total revenue is bigger than total expenditure in those three activities (food, tourism and trade). Tourism shows a permanent increase in the ratio from year to year. The food production had the same ratio for 2008 and 2012 (1.4) and shows an increase in 2017 (1.08).



	FOOD PRODUCTION	OTHER PRODUCTION	TOURISM	TRADE	TRANSPORT, CARGO	CONSTRUCTION AND REAL ESTATE	SERVICES
ETB 2017	1.08	0.86	1.08	1.03	0.99	1.01	1.03
ETB 2012	1.04	1.07	1.06	1.01	0.94	0.86	0.89
ETB 2008	1.04	0.96	1.01	1.05	1.11	1.03	1.14

Chart 4: The ratio of total revenues and total expenditures of listed companies

The results of the Friedman Test for ETB ratio are shown in Table 3. There is a statistically significant difference in the ratio, depending on the year for which the ratio is calculated $\chi 2(2) = 9.646$. $p = 0.008$. Because $p < 0.05$ we will reject the first null hypothesis.

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles		
						25th	50th (Median)	75th
ETB 2017	96	1.048	0.305	0.171	2.623	0.985	1.038	1.125
ETB 2012	96	0.941	0.285	0.127	2.166	0.818	0.986	1.065
ETB 2008	96	0.949	0.273	0.000	1.554	0.908	1.007	1.049

Friedman Test

Ranks

	Mean Rank
ETB 2017	2.23
ETB 2012	1.78
ETB 2008	1.99

Test Statistics[a]

N	96
Chi-Square	9.646
Df	2
Asymp. Sig.	.008

a. Friedman Test

Table 3: The Friedman Test for ETB ratio

Because there was a statistically significant difference in ETB ratio, we followed up with the Wilcoxon signed-rank tests. Bonferroni correction set a significance level at $p < 0.017$. The result of the Wilcoxon signed-rank test is shown in table 4. There were no significant differences between the Indicator ETB 2008 vs 2012 ($Z = -1.118$. $p = 0.263$) and in 2008 vs 2012 ($Z = -2.317$. $p = 0.021$). However. there was a statistically significant differences in the Indicator ETB in 2012 vs. 2017 ($Z = -3.976$. $p = 0.000$).

	ETB 2012 - ETB 2017	ETB 2008 - ETB 2017	ETB 2008 - ETB 2012
Z	-3.976[b]	-2.317[b]	-1.118[c]
Asymp. Sig. (2-tailed)	.000	.021	.263

b. Based on positive ranks.

c. Based on negative ranks.

Table 4: The Wilcoxon Signed Ranks Test of ETB ratio

The most important ratio is the ratio of sales operations. The average ratio of sales revenues and sales expenses of researched companies listed in 2017 and 2012 is 1.05 and in 2008 is 1.08. The ratio according to activities is visible in Chart 5. The EBO ratio in food industries, tourism and trade activities is bigger than 1 in all three years. The amount of the sales revenue is bigger than sales expenditure in those three activities (food, tourism and trade). Tourism shows a permanent increase in the ratio from year to year for 0.01. Food production had a ratio of 1.13 in 2008, 1.06 in 2012 and 1.08 in 2017.

	FOOD PRODUCTION	OTHER PRODUCTION	TOURISM	TRADE	TRANSPORT, CARGO	CONSTRUCTION AND REAL ESTATE	SERVICES	AVERAGE
EBO 2017	1.08	0.87	1.09	1.04	1.01	1.03	1.18	1.05
EBO 2012	1.06	1.11	1.08	1.02	0.96	0.88	0.94	1.05
EBO 2008	1.13	1.00	1.07	1.07	1.14	1.39	1.19	1.08

EBO 2017 EBO 2012 EBO 2008

Chart 5: The Ratio of sales revenue and sales expenditure of listed companies

The result of the Friedman Test of EBO Ratio is shown in Table 5. There is a statistically significant difference in the Ratio depending on which year ratio is calculated $\chi 2(2) = 8.313$. $p = 0.016$. Because $p < 0.05$ we will reject the first null hypothesis.

The result of the Wilcoxon signed-rank tests for the ratio of the operating revenues and operating expenses (EBO Ratio) is shown in Table 6. There were no significant differences between the Ratio EBO 2008 vs 2017 ($Z = -2.120$. $p = 0.034$) and in Ratio EBO 2008 vs 2012 ($Z = -0.322$. $p = 0.418$). However. there were a statistically significant differences in the EBO Ratio in 2012 vs. 2017 ($Z = -3.183$. $p = 0.001$).

The ratio of financial operation is like expected, less than 1 for all activities, because companies need some external financial assets and pay interest. The average ratio of financial operation of researched listed in 2017 is 0.79 and 2012 is 0.52, and in 2008 is 0.62.

According to the Friedman Test for EFO Ratio shown in Table 7. There is a no statistically significant difference in EFO Ratio depending on which year ratio is calculated. The Friedman Test of EFO Ratio shows $\chi 2(2) = 1.521$ $p = 0.467$. Because $p > 0.05$ we will accept the third null hypothesis.

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles		
						25th	50th (Median)	75th
EBO 2017	96	1.094	0.367	0.201	3.137	1.005	1.052	1.150
EBO 2012	96	1.006	0.314	0.005	2.383	0.878	1.018	1.099
EBO 2008	96	0.887	1.083	-9.277	1.640	0.957	1.023	1.083

Ranks

	Mean Rank
EBO 2017	2.24
EBO 2012	1.86
EBO 2008	1.90

Test Statistics[a]

N	96
Chi-Square	8.313
df	2
Asymp. Sig.	.016

a. Friedman Test

Table 5: The Friedman Test of EBO Ratio

Test Statistics[a]

	EBO 2012 - EBO 2017	EBO 2008 - EBO 2017	EBO 2008 - EBO 2012
Z	-3.183[b]	-2.120[b]	-.322[c]
Asymp. Sig. (2-tailed)	.001	.034	.748

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

c. Based on negative ranks.

Table 6: The Wilcoxon Signed Ranks Test of EBO ratio

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum	Percentiles		
						25th	50th (Median)	75th
EFO 2017	96	.881	2.345	.000	22.708	.245	.467	.894
EFO 2012	96	4.106	28.204	.000	274.268	.102	.313	.729
EFO 2008	96	.752	1.387	.000	10.794	.132	.369	.744

Ranks

	Mean Rank
EFO 2017	2.08
EFO 2012	1.91
EFO 2008	2.01

Test Statistics[a]

N	96
Chi-Square	1.521
df	2
Asymp. Sig.	.467

a. Friedman Test

Table 7: The Friedman Test of EFO Ratio

The result of vertical analyses of listed companies shows that structure of profit and loss statement elements are similar in all three years (Table 8). Operating revenue is slightly smaller compared to 2012 and 2008, while operating expenses slightly increased in the total revenue in 2017. Sales revenue, although showing an increase in the 2017 structure over 2008, should increase by a few percent.

DESCRIPTION	**2017 %**	**2012 %**	**2008 %**
OPERATING REVENUE	96.87	97.93	97.39
SALES REVENUE	92.40	93.02	89.48
OPERATING EXPENSES	94.48	93.19	90.54
SALARY	14.65	12.36	9.94
AMORTIZATION & DEPRECIATION	8.46	7.12	5.75
FINANCIAL REVENUE	2.91	1.82	2.49
FINANCIAL EXPENSES	3.67	3.53	4.01
TOTAL REVENUE	**100.00**	**100.00**	**100.00**
TOTAL EXPENSES	96.27	96.52	93.31
NET PROFIT	2.57	2.37	2.97

Table 8: Vertical analyses of listed companies

5. CONCLUSION

Profit and loss statement as one of the basic financial statements provides the first image on business profitability of a company. Investors first, always check the net profit of a company, if they can expect a dividend. Shareholders are, besides net profit, also interested in the revenues structure from which net profit accrues, i.e. is it a result of regular business or is it a result of financial revenues from consolidating the finance of the group.

Vertical analysis of companies listed at the Zagreb Stock Exchange has pointed out a need for improvement of revenues from regular business, i.e. sales. Horizontal analysis of companies listed at the Zagreb Stock Exchange has demonstrated that proportions of the profit and loss statements from 2008 have not yet been achieved, the year which was taken as the reference year in this research. Cost-effectiveness indicators show that a company's management is a little bit more efficient today than in the past, but the reason is financial revenue, and not the increase in sales operation. Cost-effectiveness indicators of operative business are higher than 1, which is positive for all three observed years, but in 2012 and 2017 indicators are lower (1.05) than in the year 2008 (1.08).

The managers of companies listed on the Zagreb Stock Exchange face constant efforts on business improvement, finding new markets, increasing of revenues from sales with lowering of expenditures.

In further research it is necessary to ask the managers of listed companies why is the recovery so slow and will all tax and economic reforms, as well as the upgrade of the rating of Croatia by the S&P agency on BBB – contribute to a faster recovery of the society.

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THE IMPACT OF USING THE INFORMATION TECHNOLOGIES ON INTERNATIONAL BUSINESS DEVELOPMENT OF STATE-OWNED COMPANIES IN THE REPUBLIC OF CROATIA

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Abstract: *Information technology is a driver of modern business and revolution that affects the competition of all participants in the local and global market. It affects the customer's strength and lowers costs, links business partners, triggers new business processes and participates in creating new products. The global business environment of companies crossing the borders of their country and doing business in other countries today is the standard that everyone is trying to reach. Such business goals have an impact on the economy of the whole country. The accelerated development of information technology has greatly influenced the international markets that were once limited by geographic distances. All companies in today's world market are equally competitive and can achieve significant success.*

The main aim of this paper is analysis of the impact of using information technologies on the international business development of state-owned companies in the Republic of Croatia. We introduced the results of the survey research on target population of 122 employees in state-owned companies in the Republic of Croatia. The research was conducted in the period from August 27 to September 6, 2018. The data are processed statistically with the SPSS program. The results of our research have undoubtedly showed that state-owned companies in the Republic of Croatia that use advanced information technology and investing in IT education of their employees achieve significant success on the international market.

Keywords: *information technology, international business development, state-owned companies.*

2 INTRODUCTION

International business means business activity of a company that is related to international trade or international investment. In general terms, international business is the process of overtaking some goods from one to another owner with the basic purpose of getting each of them to the good that they do not produce. Exports of goods represent one aspect of international trade. The goal of each country is to obtain the best services, raw materials, energy and final products that would have spent too much resources in their country or they would not be able to produce them at all. To start the process of international business, it is a prerequisite for countries to be specialized in the production of a particular product with which to compete in the external market. The land borders today are no longer an obstacle to the international trade process. The international market is actually the space where international exchange is taking place.[1]

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The development of modern technologies has greatly influenced the international markets that were once limited by geographic distances. Fifteen years ago, we could not even imagine that something would be ordered online, from China or Indonesia. The emergence of information technologies enabled all companies in the market to compete equally and try to take their share of the cake. Modern business and business environment are much more dynamic than it was twenty years ago. Consumer needs are much more intensive and more pronounced than before and this has resulted in innovations, new products, or improved versions of existing products. Today, new products are being created on a daily basis in the world. Some of them succeed, but most do not achieve some level of success. The emergence of new products also creates new markets.[2]

Today, there is growing awareness that merging two or more companies increases the likelihood of success on the market. Monopolism is diminished or almost excluded from the game and we can say that business success will only be achieved by companies that will best adapt to the new demands of the global market. New business relationships among partners are facilitated by the use of modern digital technologies. Companies are easier to connect and create a network of partnerships. It can be said that global virtual companies of the future will be able to activate and cooperate with each other on a new partner every day. Each partner has a particular role on the project he is working on and involved in all project innovations regardless of his location.[3]

2. USING OF THE INFORMATION TECHNOLOGIES AND INTERNATIONAL BUSINESS DEVELOPMENT OF COMPANIES

E-business is a modern way of doing business that implies the use of Internet and information technology. Companies that want to take on the best position on the domestic and foreign markets must organize their business in a way that turns to e-business.[4] Information technology is a driver of modern business. It can be said that IT is the revolution that affects the competition of all the participants in the local and global market and affects the customer's strength and increases competition. In the long run IT seeks to reduce costs, connect business partners, launch new business processes, and participate in creating new products.

In today's conditions of globalization and market liberalization, the expansion of business operations into the international market is a key element not only of development but also of the survival of the national economy. Export as an economic activity is one of the simplest forms of international business on the international market. It is the most attractive and most appropriate business activity for all types of business and sizes of the enterprise with regard to the constantly decreasing transport and communication costs.[5]

Economic indicators related to Croatian exports are not favorable: only about ten percent of Croatian companies export products, inconsistencies in export, low added value of export products, steady growth of imports, long-term negative external trade balance. The export performance is measured by the level of individual enterprises, industries, branches and the overall national economy. Based on the survey and the cluster analysis on a sample of 88 Croatian exporters, the export performance of Croatian exporters was analyzed by objective and subjective indicators.

As regards the share of exports in the total business, the largest number of companies surveyed, 41 or 46.6%, have over 50% of exports in total business, 21 (23.9%) have export share of 26-50%, 17 (19.3 %) has an export share of 10 to 25% and 9 (10.2%) of enterprises less than 10%.

However, managers' thinking and their satisfaction with the company's export performance differs. Namely, only 8 of them (9.3%) expressed the highest level of satisfaction with their company's export performance, 33 (38.4%) rated 4, 31 (36%) grade 3, 10 managers (11.6% grade 2, and one respondent is totally unsatisfied with the company's export performance. [6]

Information technology also affects tangible and intangible business parameters. Under the tangible, we can have shorter production time, better business results, and lower costs. Undeniably, we can have better connectivity with partners, greater level of customer service, faster and better decision making, improved image, etc. [7] Enterprises that have a competitive advantage use IT as a means of creating value. They reduced production costs and at the same time increased the quality of products or services. Managers in such companies understand the advantages of information technology and play a significant role in creating a business strategy. Enterprises that need to lower their costs using information technology need to be aware that their spending will be huge, but the final result will be manifested through profitability and quality.[8]

3. THE GOALS, BASIS AND HYPOTHESIS OF THE RESEARCH

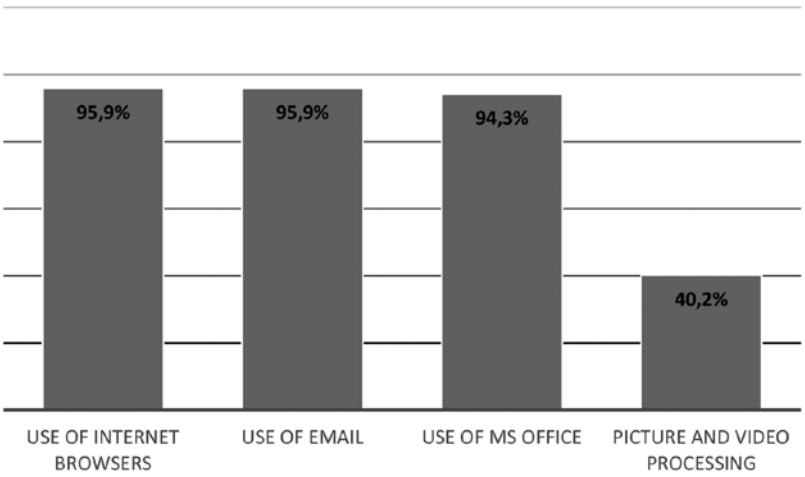
In this survey research there were involved 122 employees in state-owned companies in the Republic of Croatia. The research was conducted in the period from August 27 to September 6, 2018. All questionnaires were distributed by e-mail, and the Google Forms online service was used for the purposes of research.

Women account for 56.6% of the sample, while the remaining 43.4% are men. The highest number of subjects of both sexes belongs to the age group of 36 to 45 (42.6%). A group of 26 to 35-year-old is 30.3%. 19.7% of respondents belong to the age group 46 to 55. No respondent is from the youngest age group, while the oldest age group belongs to 7.4% of the respondents. The same percentage of respondents have completed high school and college (14.8%). There are 9.8% of the respondents who have a master's degree or doctoral degree but the university level of qualifications (60.7%) prevails among the respondents.

For the statistical analysis, this paper uses the analysis stemming from chi-square tests and correlation coefficients to examine interdependencies. The statistical study used the software package SPSS 21. In the sequel of this paper we will explain how we tested the hypotheses based on the results of our survey. Individually we will analyze each H0 and H1 hypothesis.

H0: There is no significant correlation between the education level of respondents and the use of Internet browsers.
H1: There is a significant correlation between the education level of respondents and the use of Internet browsers.

The results of the survey have shown, as can be seen in graph 1, that 95.9% of respondents use Internet browsers, but the use of the Internet browsers differs according to the level of education of the respondents. The results of the survey have shown that 100% of respondents who have completed high school and college use Internet browsers, 2.7% of respondents who graduated at University do not use Internet browsers and 97.3% of them use it, and 16.7% respondents who have a master's degree or doctoral degree do not use it and 83.3% use Internet browsers in their day-to-day business.

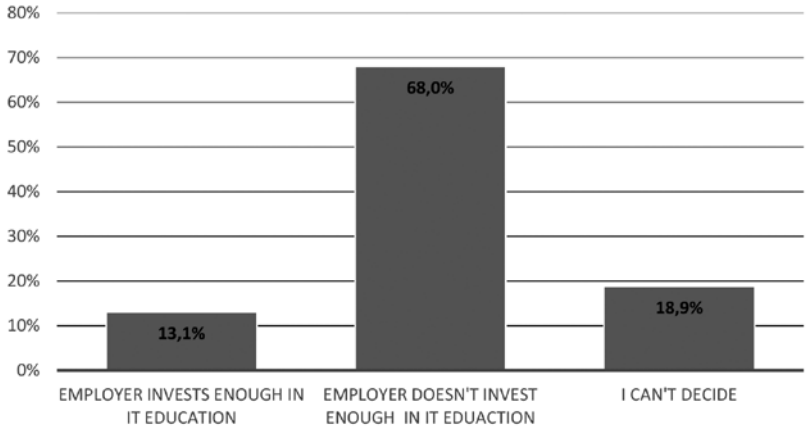


Graph 1. Computer skills of respondents

When the results were analyzed by the method of Pearson Chi-Square, it turned out that there was a significant correlation between the education level of respondents and the use of Internet browsers ($X^2 = 8.080$, $p < 0.044$). With reference to the p lower than 0.05, it was confirmed that in this case there is a significant correlation with regard to this result, hypothesis H0 is rejected and H1 hypothesis is confirmed.

H0: There is no significant correlation between the age of respondents and attitude towards IT education in their company.

H1: There is a significant correlation between the age of respondents and attitude towards IT education in their company.



Graph 2. Employer's investment in IT education

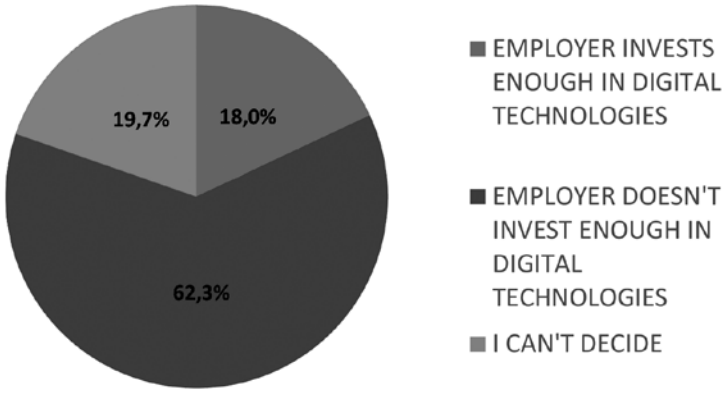
The results of the survey have shown, as can be seen in graph 2, that 68% of respondents believes their employer does not invest enough in IT education, 13.1% believes their employer invests enough in IT education, and 18.9% of respondents could not decide. When we further analyzed the correlation between the age of respondents and their attitude toward the IT education in the company, the results have shown that 62.2% of respondents aged 26 to 35 do not think their employer is sufficiently investing in IT education, 21.6% think they are investing enough, and 16.2% do not know.

69.2% of respondents aged 36 to 45 do not think their employer is sufficiently investing in IT education of employees, 3.8% think they are investing enough, and 26.9% do not know. 79.2% of respondents aged 46 to 55 do not think their employer is sufficiently investing in IT education of employees, and 20.8% think it is enough. 55.6% of people over 55 do not think their employer is sufficiently investing in IT education, 11.1% think they are investing enough, and 33.3% do not know the answer.

When the results were analyzed by the method of Pearson Chi-Square, it turned out that there was a significant correlation between the age of respondents and attitude towards IT education in their company ($X^2 = 14.866$, $p < 0.021$). With reference to the p significantly lower than 0.05, it was confirmed that in this case there is a significant correlation with regard to this result, hypothesis H0 is rejected and H1 hypothesis is confirmed.

H0: There is no significant correlation between the sex of the respondents and their opinion that IT technologies contributes to greater autonomy in making business decisions.

H1: There is a significant correlation between the sex of the respondents and their opinion that IT technologies contributes to greater autonomy in making business decisions.



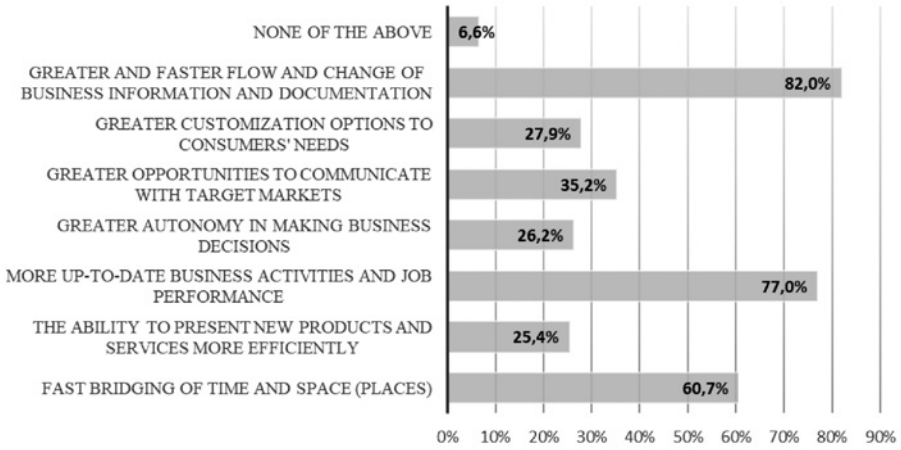
Graph 3. Employer's investment in digital technology

The results of the survey have shown, as can be seen in graph 3, that 62.3% of respondents believes their employer does not invest enough in digital technologies in the company's business, 18% of respondents believes their employer invests enough in digital technologies in the company's business and 19.7% of respondents could not decide. When we further analyzed the correlation between the sex of the respondents and their opinion that IT technologies contributes to greater autonomy in making business decisions, the results have shown that 64.2% of male respondents do not think that IT technology contributes to greater autonomy in making business decisions, while 35.8% responded positively, while 81.2% of female respondents do not think IT technology contributes to greater autonomy in making business decisions and only 18.8% of them responded positively to this question.

When the results were analyzed by the method of Pearson Chi-Square, it turned out that there was a significant correlation between the sex of the respondents and their opinion that the IT technologies contributes to greater autonomy in making business decisions ($X^2 = 4.481$, $p < 0.034$). With reference to the p significantly lower than 0.05, it was confirmed that in this case there is a significant correlation with regard to this result, hypothesis H0 is rejected and H1 hypothesis is confirmed.

H0: There is no significant correlation between the level of education of respondents and their opinion that introduction of IT technologies in the company provides greater customization options to consumers' needs.

H1: There is a significant correlation between the level of education of respondents and their opinion that introduction of IT technologies in the company provides greater customization options to consumers' needs.



Graph 4. Benefits of introducing IT technology to the company

The results of the survey have shown, as can be seen in graph 4, that that 27.9% of respondents believes that introduction of IT technologies in the company provides greater customization options to consumers' needs. We further analyzed the correlation between the level of education of respondents and their opinion that introduction of IT technologies in the company provides greater customization options to consumers' needs.

The results of the survey have shown that 61.1% of respondents who finished high school disagree with this statement, and 38.9% agree. 44.4% of respondents who finished college disagree with this statement, 55.6% of them agree. 79.7% of respondents with a University diploma disagree with this statement, and 20.3% of them agree, while 79.7% of respondents with a master's or doctoral degree disagree with this statement but 20.3% of them think that the introduction of IT technologies in the company provides greater customization options to consumer's needs.

When the results were analyzed by the method of Pearson Chi-Square, it turned out that there was a significant correlation between the sex of the respondents and their opinion that the introduction of IT technologies in the company provides greater customization options to consumer's needs ($X^2 = 10.826$, $p < 0.013$). With reference to the p significantly lower than 0.05, it was confirmed that in this case there is a significant correlation with regard to this result, hypothesis H0 is rejected and H1 hypothesis is confirmed.

4. CONCLUSION

Companies that have a competitive advantage use information technology as a means of creating value. Information technology is a driver of modern business. The results of our research have shown that state-owned companies in the Republic of Croatia that use advanced information technology and investing in IT education of their employees achieve significant success on the international market. The results of the survey presented in this paper have shown that there

is a significant correlation between: the education level of respondents and the use of Internet browsers and the age of respondents and attitude towards IT education in their company. The research results are in fact the major contribution of this paper.

The results of our research have shown that there is a significant correlation between the sex of the respondents and their opinion that IT technologies contributes to greater autonomy in making business decisions and also between the level of education of respondents and their opinion that introduction of IT technologies in the company provides greater customization options to consumers' needs. The results of the survey have shown that 68% of respondents believes their employer does not invest enough in IT education and there is a potential for great progress in the future. This research results can be used by all managers in state-owned companies as an indicator of the direction in which state-owned companies should be developed. This research results can be the perfect base for future research on a similar topic.

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EXPORT COMPETITIVENESS OF BULGARIAN BOTTLED WINES

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Abstract: *Historically, Bulgaria has been a long-standing wine producer and exporter. Over the past few decades there have been changes in the political environment, the production and the market, which are associated with certain threats and opportunities for Bulgarian wine producers. The purpose of this paper is to examine the export competitiveness of Bulgarian bottled wines. The assessment is based on a set of indicators of import and export quantities and prices for the main external markets. Our research findings indicate that Bulgarian producers are selling mainly in the low-price segments, and, in many cases, at a high level of price volatility and decreasing quantities.*

Keywords: *Bottled wines, competitiveness, wine export, wine trade.*

1. INTRODUCTION

Over the past few decades, wine exports from Bulgaria have been seriously declining [2, 4, 5, 11, 14]. The reasons for this phenomenon can be grouped into three main categories.

First, after 1989, large state enterprises were privatized, which caused serious shock related to the reduction of production volumes and, in many cases – closure of production facilities. Private wine exporters could not maintain their positions on the traditional external markets because of the lower quality, insufficient product marketing experience and lack of cooperation between producers [10].

Second, competition on the international markets has become increasingly intensive. The so-called "New World" market players apply an innovative approach with respect to technologies and rapidly develop their wine production by directing their sales strategies to the external markets. The market share of producers from these countries is rapidly growing, which results in a decrease in the quantities exported by European producers [3, 8].

Third, the general trend in the European Union, where the primary share of Bulgarian wine exports takes place, is reduction in wine consumption per capita because of shifting to other alcoholic beverages and changes in lifestyle related to avoiding any unhealthy habits [8].

Bulgaria's integration to the EU Common Agricultural Policy and the adoption of National Programmes that support the wine growing sector after 2007 have provided new opportunities to Bulgarian producers to benefit from financial grants for improving the methods and technologies for wine production and marketing.

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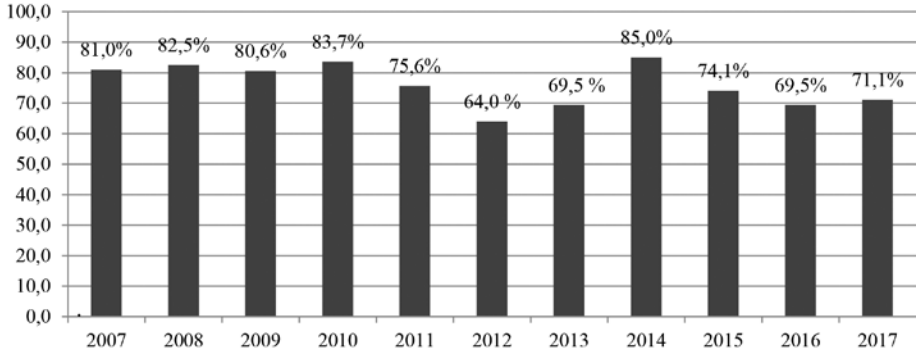
Traditionally, bottled wines have taken up the major share in the structure of wine exports in Bulgaria. The relative share of the exported quantities of bottled wines is higher than the sum of the shares of the other two groups of wines – sparkling wines and unbottled wines (Figure 1).



Source: Own calculation based on data from UN Comtrade database [15]

Figure 1. Relative share of the exported quantities of non-sparkling bottled wine in the general wine exports during the period 2007-2017.

The problems mentioned above and the favorable opportunities lead us to the following question: What are the impacts of changes in the environment on the competitiveness of Bulgarian bottled wine on the different external markets?

A number of studies have analyzed individual issues related to Bulgarian wine production and export, including the trend in the total quantities exported, the average export price [7] and the marketing of wine [10, 14] produced in Bulgaria [2, 4, 6, 10, 11]. To the best of our knowledge, there are currently no studies on the competitive performance of wine export from Bulgaria. Such research would be useful for discovering opportunities for improving the competitive positions of Bulgarian exports.

The purpose of this paper is to evaluate the export competitiveness of Bulgarian bottled wine on the main external markets.

The economic sources have not established a generally accepted understanding about the meaning of the term "export competitiveness". According to M. Porter, C. Ketels and M. Delgado, "competitiveness is a country's share of world markets for its products" [13]. According to Porter's competitiveness framework [12], competitiveness, in essence, is defined as productivity. The larger the quantities of exports of a given product, the higher the exposure of producers to foreign competition and ideas. Some of the primary indicators for competitiveness on the wine market are the exported quantities [16], the export prices [9], their volatility and the quality of [3] the exported wines [17].

2. METHOD

This study covers the period 2007 – 2017. The design of the study has been developed in the following sequence. First, the trend in the total quantities of exported bottled wine was analyzed. Then, the importing countries were ranked in descending order based on the quantities imported for each year of the period. Third, based on the countries, where the largest quantities of wine exports take place, the countries that account for 80% of the total wine exports from

Bulgaria were identified for each year of the studied period. For each of these importing countries, indicators related to the prices and quantities of the bottled wine exported from Bulgaria were calculated (Table 1).

Indicator	Formula
Level of dependence from bottled wine imports from Bulgaria	$\frac{IQBgj}{IQj}.100$ (1) $IQBgj$ - *quantities of bottled wine imported from Bulgaria in country j* IQj - *total quantities of bottled wine imported in country j*
Average price (FOB) of exported bottled wines from Bulgaria	$\overline{EP(FOB)Bgj} = \frac{\sum_{i=1}^{n} EP\,(FOB)Bgij.\ EQ\ Bgij}{\sum_{i=1}^{n} EQ\ Bgij}$ (2) $EP\ (FOB)Bgij$ – *export price of Bulgaria during year i to country j* $EQ\ Bgij$ – *quantities of bottled wine exported during year i to country j;*
Bulgarian bottled wines export price volatility	$V_{\sigma\%} = \frac{\sigma}{\overline{EP\,(FOB)Bgj}}.100$ (3) $V_{\sigma\%}$- *prices coefficient of variation* $\overline{EP(FOB)Bgj}$- *average level of export prices (FOB) from Bulgaria to country j* σ – *standard deviation of export prices*
Percentage difference between the international import price of bottled wine and the import price from Bulgaria	$\frac{IP\,(CIF)j - IP(CIF)Bgj}{IP(CIF)Bgj}.100$ (4) $IP\ (CIF)j$ – *international import price of bottled wine to country j based on CIF delivery terms* $IP(CIF)Bgj$ – *import price of bottled wine from Bulgaria to country j based on CIF delivery terms*

Table 1. Indicators for quantities and import/export prices of Bulgarian bottled wine in the main importing countries

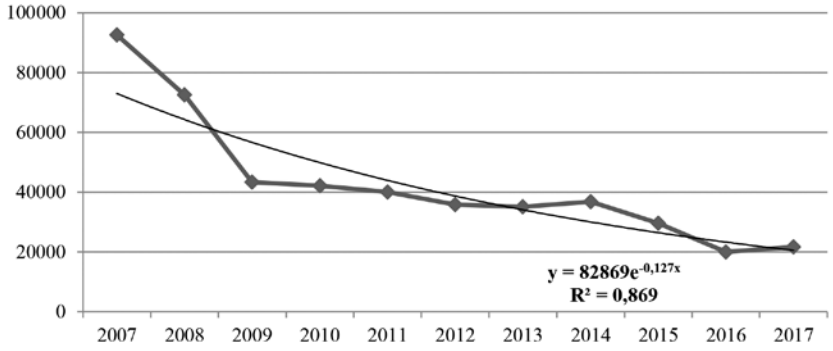
Observations of wine exports and imports were classified at the 220421 code according to the Harmonized Commodity Description and Coding Systems (HS 2017) and originated from the UN Comtrade Database. The information that is necessary to identify the countries to which Bulgaria exports the highest quantities of wine has been obtained from the annual agricultural reports of the Ministry of Agriculture, Food and Forestry issued during the period 2006-2018. The study is restricted by the lack of statistical data about the types and quality of exported bottled wines. This hinders the evaluation of competitiveness based on the price-quality ratio.

3. RESULTS

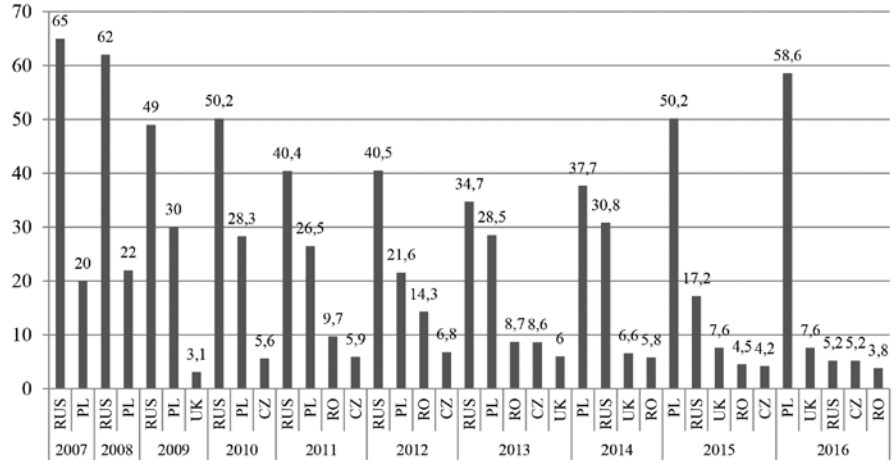
The total exported quantities of Bulgarian bottled wines during the period 2007-2017 have been decreasing at a growing pace (Figure 2).

By 2010, about half of the exported wine was exported to Russia and there were two countries where the primary share of exports took place – the Russian Federation (RUS) and Poland (PL). After 2010, 80% of the exports were comprised of quantities of wine exported to a larger number of countries: Poland, Russia, the United Kingdom (UK), Romania (RO) and the Czech Republic (CZ) (Figure 3).

After 2013, Poland took the position of Russia as the largest consumer of Bulgarian wine. In 2015 and 2016, exports to Poland accounted for more than 50% of the total exports of bottled wines (Figure 3).



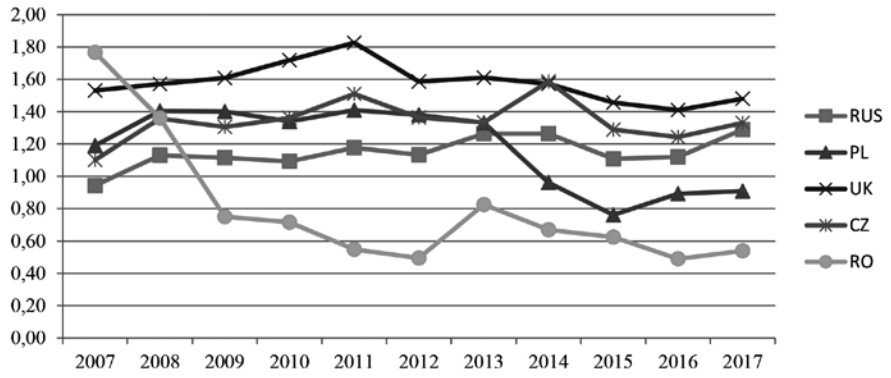
Source: Own calculation based on data from UN Comtrade database [15]
Figure 2. Bottled wine exports from Bulgaria (in thousand liters), 2007-2017.



Source: Own calculation based on data from Annual Agricultural Reports, Ministry of agriculture, food and forestry, Bulgaria, 2008 – 2017 [1]
Figure 3. 80% of the quantities of bottled wine exported from Bulgaria by importing countries, 2007-2016.

Country / Indicator	Measuring Unit	RUS	PL	UK	CZ	RO
Level of dependence from bottled wine imports from Bulgaria	%	8.80	13.90	0.27	2.50	11.40
Average price (FOB) of exported bottled wines from Bulgaria	USD/lt	1.15	1.18	1.50	1.34	0.80
Coefficient of variation of the export prices from Bulgaria	%	8	21	7	9	50
Percentage difference between the international import price (CIF) and the import price from Bulgaria (CIF)	%	102.7	76.8	154	5.75	174

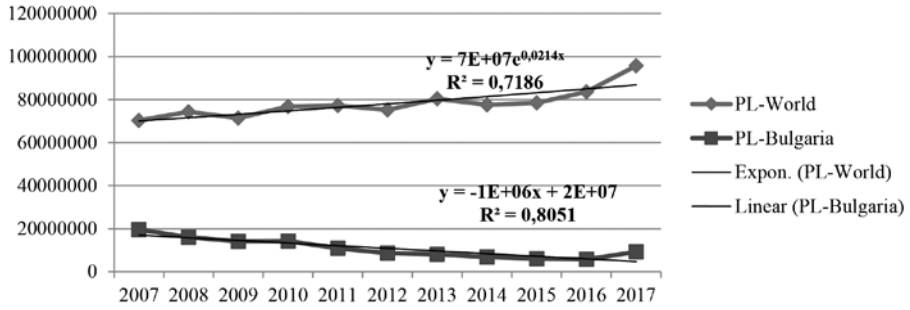
Table 2. Values of indicators for quantities and import/export prices of Bulgarian bottled wine in the main importing countries, 2007 -2017.



Source: Own calculation based on data from UN Comtrade database [15]
Figure 4. Average export price (FOB) per liter of bottled wine from Bulgaria by years for the period 2007-2017.

The total quantities of international imports of wine to Poland have been increasing at a growing pace during the period 2007-2017 (the trend line that describes the empirical curve of the imported quantities with highest precision is exponential, Figure 5). In contrast to this tendency, imports from Bulgaria are gradually declining. The quantities imported from Bulgaria in 2017 are two times lower than the ones imported in 2007.

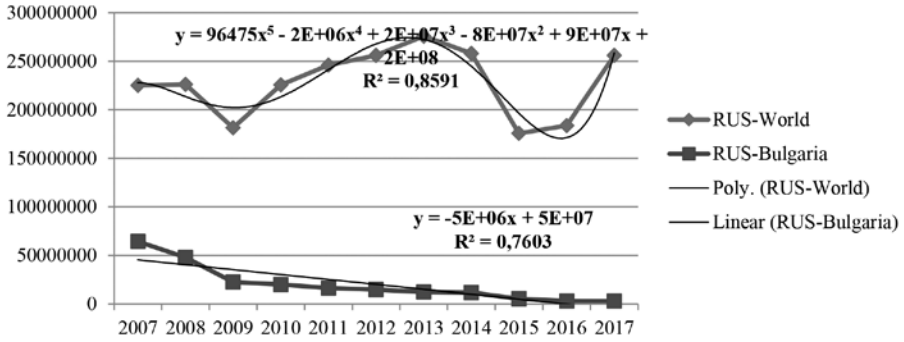
The level of dependence of the total imports to Poland on the quantities imported from Bulgaria is relatively high – about 14% (table 2). The average export price (1.18 US dollars per liter) to Poland is lower than the one to the Czech Republic and Great Britain and higher as compared to the other two countries - Russia and Romania (Table 2, Figure 4).



Source: Own calculation based on data from UN Comtrade database [15]
Figure 5. Quantities of international and Bulgarian imports of bottled wine to Poland by years for the period 2007-2017. (USD)

The export price volatility to this country is relatively high – the value of the coefficient of variation of export prices is 21% – this indicator has a lower value only with respect to Romania. The difference between the international import price and the import price from Bulgaria is 76.8% and this indicator has a higher value only with respect to the Czech Republic.

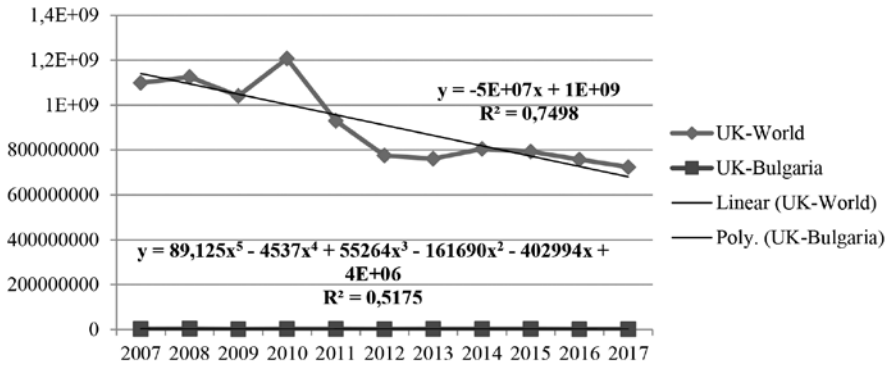
In terms of quantities, international imports to Russia have been fluctuating in both directions during the studied period. The largest quantities have been imported in 2013, whereas the lowest quantities have been imported in 2015. The quantity of wine Russia has imported from Bulgaria has been gradually declining throughout the period, with 19 times higher imports in 2007 as compared to 2017 - Figure 6.



Source: Own calculation based on data from UN Comtrade database [15]
Figure 6. Quantities of international and Bulgarian imports of bottled wine to Russia by years for the period 2007-2017.

The imports from Bulgaria account for about 9% of total imports of bottled wine to Russia during the period (Table 2). The average export price of bottled wines from Bulgaria to Russia is relatively low – 1.15 USD per liter – compared to the value of this indicator with respect to the other four countries, only the export price to Romania is lower. The import price from Bulgaria is slightly more than two times lower than the average price of Russia's international imports. Price volatility is relatively low – 8 % (Table 2, Figure 4).

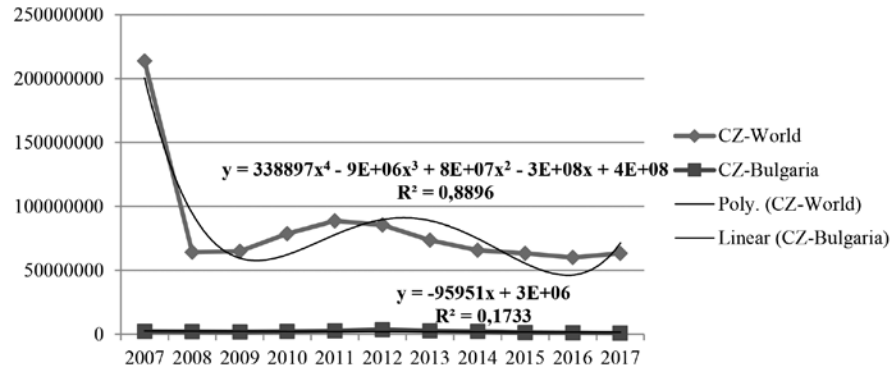
The total quantities of imported bottled wine to the United Kingdom have been gradually declining during the period. The quantities imported from Bulgaria have been fluctuating throughout the period (fig. 6) and account for a very small part of the total quantities imported to the country - only 0.27% of the total quantity of wine imported to Great Britain comes from Bulgaria (table 2).



Source: Own calculation based on data from UN Comtrade database [15]
Figure 7. Quantities of international and Bulgarian imports of bottled wine to the United Kingdom by years for the period 2007-2017.

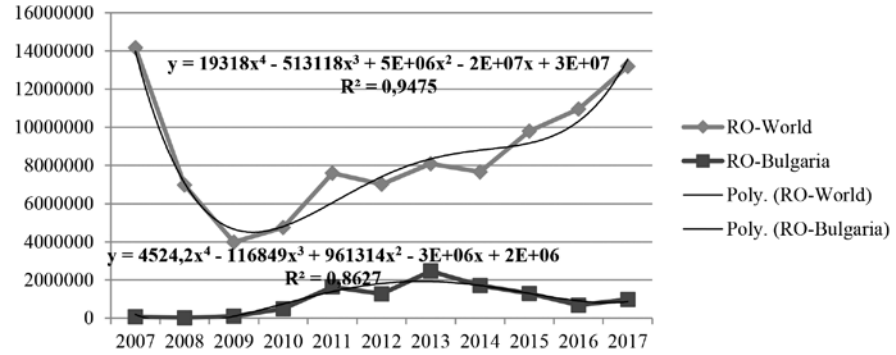
The export price of bottled wines from Bulgaria to this country is the highest one for the entire period after 2008 (fig. 4) and the level of price volatility is the lowest. At the same time, the difference between the average international import price and the average Bulgarian import price is relatively high – 154% (Table 2, Figure 4).

The quantities of bottled wine imported to the Czech Republic have been fluctuating in both directions during the period - Figure 7. The imports from Bulgaria account for 2.5% of the total imported quantities (Table 2).



Source: Own calculation based on data from UN Comtrade database [15]
Figure 8. Quantities of international and Bulgarian imports of bottled wine to the Czech Republic by years for the period 2007-2017.

Compared to the values of the indicators for the other four countries, the average export price of Bulgarian bottled wines to the Czech Republic is relatively high – 1.34 USD per litre, and the percentage difference between the international import price and the Bulgarian import price is the lowest one. The level of export price volatility to this country is significantly lower as compared to the same indicator with respect to Poland and Romania (Table 2).



Source: Own calculation based on data from UN Comtrade database [15]
Figure 9. Quantities of international and Bulgarian imports of bottled wine to Romania by years for the period 2007-2017.

The quantities of bottled wine imported to Romania have decreased more than three times in the period 2007-2009 and then have increased to a level that is close to the one from year 2007. The quantities imported from Bulgaria in 2017 are 13 times higher than the quantities imported in 2007 (Figure 8).

During the period 2007-2017, imports from Bulgaria account for approximately 11% of the total quantities imported to the country (Romania is overtaken only by Poland with respect to this indicator). The average export price of bottled wines from Bulgaria to Romania is the lowest one and the price volatility is the highest one, as compared to the values of this indicator with respect to the other studied countries. The percentage difference between the international import price and the import price from Bulgaria is the highest one – 174%.

4. CONCLUSIONS

Based on the results from the analysis, we have come to the following main conclusions:

First, the exports of bottled wines from Bulgaria have been declining at a growing pace during the period 2007-2017. The structure of exports has changed toward increasing the number of countries to which the main quantities of bottled wines are exported.

Second, the quantities exported to all main business partners (except for exports to Romania) are either declining or fluctuating. The exports of bottled wine in liters to Bulgaria's traditional business partners – Poland and Russia – has been gradually decreasing during the studied period. At the same time, the studied dynamics does not follow the pattern of changes in the total quantities imported to these two countries. Exports to Great Britain and the Czech Republic during the period have accounted for a relatively small share of the total quantities of imports to these countries and have been fluctuating significantly.

Third, the average international import price to each of the five countries is higher than the average import price from Bulgaria. This difference is higher than 100% with respect to Russia, Great Britain and Romania. Bulgarian producers sell primarily in the low-price segment. Exports to Great Britain and the Czech Republic take place at relatively high prices and relatively low-price volatility. However, the quantities exported to these countries during the studied period are relatively low and have been fluctuating significantly.

In conclusion, the competitiveness of exports of bottled wines from Bulgaria has been relatively low on the traditional external markets – most sales are within the low-price segment and their volumes are diminishing. Therefore, in order to develop this sector in Bulgaria, it is particularly important to put some effort on researching and discovering new export markets. It is important for Bulgarian producers to take favorable positions in countries where wine consumption per capita is still low, but grows at a fast pace (such as China, USA and Japan [3]).

In order to compensate for the diminishing quantities of exports, it is particularly important to examine the possibilities for improving the image of Bulgarian wines and for increasing the interest toward high-quality products offered at a relatively high price.

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THE ROLE OF ENTREPRENURSHIP EDUCATION IN FOSTERING ENTREPRENEURIAL INTENTIONS

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Abstract: *Nowadays, in the context of economic crises, the challenges of globalization processes and dynamic changes with existing knowledge societies, more emphasis is placed on the entrepreneurship as a driver for economic growth and innovation. The EU has also recognized the importance of entrepreneurship, as a factor influencing its progress. In addition, the European Commission states that entrepreneurship is a skill that can be learned. Therefore, one of the key goals of the EU and the Member States has been the promotion of entrepreneurial education for many years. The reason for its introduction and fostering lies in its importance, which manifests itself in developing young people's potential, initiating their own ideas, developing the skills, knowledge and attitudes that are necessary to create entrepreneurial culture, which ultimately can lead to job creation. In this paper, the perceived capabilities and perceived opportunities related to the entrepreneurial intentions (percentage of population aged 18-64 who intend to start a business within three years) are considered. Perceived capabilities refer to the percentage of people aged 18-64 who believe that they have the required skills and knowledge to start a business, and perceived opportunities also apply to the same age of the population, who see good opportunities to start a firm in the area where they live. The research was conducted among the EU countries based on Global Entrepreneurship Monitor (GEM) data, the world's largest entrepreneurship research. The results of the paper indicate that the perceived capabilities to start a firm are the greatest in Slovakia, Croatia, and Slovenia, and regarding the perceived opportunities to start a firm, Slovakia and Croatia are below the European average level, where Sweden, Poland, and the Netherlands are leading. That brings the question of why that is so and how the education system can influence the acquisition of entrepreneurial skills, knowledge, and attitudes to recognize business opportunities. According to the GEM, entrepreneurial education is one of twelve key elements of an entrepreneurial environment that contribute to the acquisition of knowledge, developing attitudes and skills of individuals and leading to the increase of entrepreneurial activity and self-employment in a particular country. Consequently, a comparison between the EU countries on the approaches to entrepreneurial education at the primary and secondary levels of education was made. It shows how particular countries of the EU (with the highest marks for entrepreneurial education by GEM experts) integrate entrepreneurial education into their education system. According to the current state of education for entrepreneurship in the EU, the European Commission documents and examples of good practice, it is evident how entrepreneurship education differs between countries and that a unified entrepreneurship education approach has not yet been established. The above refers to the need for EU members to recognize the importance of entrepreneurship education and to make greater efforts to implement it in the school curriculum and greater support of the European Commission in caring out this process.*

Keywords: *entrepreneurship education, entrepreneurial intentions, Global Entrepreneurship Monitor, perceived capabilities, perceived opportunities*

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1. INTRODUCTION AND LITERATURE REVIEW

Today, in the period of dealing with rapid changes in the market, entrepreneurship is an important factor for economic development and the competitiveness of the economy. It refers to opportunity recognition, idea development, the creation of new values that lead to launching and development of new businesses. Therefore, it is understood as the main driver of the economy, because it opens up employment opportunities, as well as business opportunities, new product development and innovations. In January 2013, in the Entrepreneurship Action Plan 2020, the European Commission states the revival of entrepreneurship in Europe as the main objective and on the track to this goal, the entrepreneurial education and training represent the fundamental prerequisites for its successful realization [5]. In defining the entrepreneurial competence, the most common definition is used by the European Commission Thematic Working Group on Entrepreneurship Education according to which *the Entrepreneurship education is about learners developing the skills and mindset to be able to turn creative ideas into entrepreneurial action. This is a key competence for all learners, supporting personal development, active citizenship, social inclusion and employability. It is relevant across the lifelong learning process, in all disciplines of learning and to all forms of education and training (formal, non-formal and informal) which contribute to an entrepreneurial spirit or behaviour, with or without a commercial objective* [9]. Moreover, according to the European framework, entrepreneurship is one of eight lifelong learning competencies, which implies the ability to transform ideas into action through creativity, innovation and risk as well as planning and management capability [3]. On top of that, Baum et al. (2007) pointed out that for turning a business idea into a successful business it is essential a human vision, intention, and work, and the human factor is the most significant for business success, much more important than the business idea itself, the market or the industry. Rebernik and Širec (2011) state that students' willingness to start a new venture in the future mostly depends on their attitudes and knowledge of entrepreneurship. Numerous studies deal with attitudes towards entrepreneurship (Greenberger and Sexton, 1988; Learned, 1992; Naffziger et al., 1994; Brandstätter, 1997), but only a few have dealt with the entrepreneurial intentions of students [1]. European Charter for Small Enterprises (2000) invites the Member States and the Commission to support and encourage small businesses in 10 key points, one of which is education and training for entrepreneurship, according to which business principles have to be taught from an early age to encourage entrepreneurial initiatives by young people and developing training programmes for small enterprises [4]. In December 2014, the Council of the European Union adopted conclusions on entrepreneurship education and training, stressing that developing entrepreneurial thinking can have significant benefits for citizens, both in their business life and in private [2]. Also, the European Parliament in 2015 states that the European Union must develop a comprehensive policy or a strategic approach to entrepreneurial education. As such, one of the key goals of the European Commission is to promote entrepreneurship education at all levels from primary school to university and to expand entrepreneurial thinking and entrepreneurial culture among students through the development and acquisition of skills, attitudes and knowledge [6]. Therefore, in the next part of the paper, the most recent data from the Global Entrepreneurship Monitor [10] were used on the entrepreneurship intentions (percentage of 18-64 population who are latent entrepreneurs and who intend to start a business within three years), perceived opportunity rate (percentage of 18-64 population who see good opportunities to start a firm in the area where they live), perceived capabilities rate (percentage of 18-64 population who believe they have the required skills and knowledge to start a business) and experts' scores on entrepreneurial education at the school stage (the extent to which training in creating or managing SMEs is incorporated within the education and training system at primary and secondary levels) in the European Union to ana-

lyse the situation whether education system influences the acquisition of entrepreneurial skills, knowledge, and attitudes which lead to greater perception of opportunities and capabilities and thus to greater entrepreneurial intentions. According to that, the main thesis in the research is the following:

Entrepreneurship education can foster entrepreneurial intentions.

The second part follows the methodology, results and discussion, and in the end the conclusions are presented.

2. METHODOLOGY

In the empirical part of the paper, according to the quantitative and statistical methods, the research goals are to examine the relationship between entrepreneurial attitudes (perceived opportunities and perceived capabilities) and entrepreneurial intentions, and to examine the expert scores on entrepreneurial education at school stage. In doing so, the GEM database and European Commission documents represent the data basis for the research. The research is cross-country and it is done on EU Member States[3].

Following the background discussion, the research hypotheses are as follows:

H1: The correlation between perceived opportunities and entrepreneurial intentions is positive and significant.

H2: The correlation between perceived capabilities and entrepreneurial intentions is positive and significant.

H3: The correlation between perceived opportunities and experts' scores on entrepreneurial education at school level among European countries is positive and significant.

The testing of the hypotheses H1, H2 and H3 was done by Person's correlation coefficient to measures the strength and direction of linear relationships between pairs of continuous variables [12]. In addition, for H3 the linear regression was performed where perceived opportunities rate represents dependent variable, and experts' scores on entrepreneurial education at the school level represent independent variable [13]. For the analysis the Microsoft Excel Programme and IBM SPSS Statistics statistical software were used.

3. RESULTS AND DISCUSSION

In this section, the results of the testing hypotheses H1, H2 and H3 are shown and discussed. First of all, taking into the account the most recent GEM data [10] of Adult Population Survey (APS), which looks at the characteristics, motivations and ambitions of individuals starting businesses, as well as social attitudes towards entrepreneurship, a high value (above the average of 12.84%) of entrepreneurial intentions rate in the EU have Romania (29.01%), Lithuania (19.65%), Croatia (18.62%), France (18.6%) and Estonia (18.14%), Latvia (17.32%), Portugal (15.81%), Ireland (15.41%), Cyprus (15.36%), Slovenia (15.28%), Hungary (15.11%), Luxembourg (14.7%), Czech Republic (13.73%) and Slovakia (13.7%). Regarding the perceived opportunities rate, a high value (above the average of 42.01%) have Sweden (81.56%), Poland (68.48%), Netherlands (60.95%), Estonia (59.66%), Denmark (55%), Luxembourg (51.65%), Ireland (51.65%), Finland

[3] The data are missing for Malta.

(49.11%), Austria (46.78%), Cyprus (45.89%), United Kingdom (44.02%), Slovenia (42.17%) and Germany (42.11%). On the other hand, the high value (above the average of 43.03%) of the perceived capabilities rate have Slovakia (53.29%), Croatia (52.32%), Slovenia (50.97%), Estonia (49.72%), Latvia (49.03%), Spain (48.46%), Romania (48.44%), Austria (48.33%), United Kingdom (46.63%), Poland (46.6%), Greece (46.39%), Netherlands (46.08%), Cyprus (45.89%), Ireland (45.56%) and Luxemburg (43.91%). Besides APS, there is NES (National Expert Survey), which examines the national context in which individuals start their entrepreneurial activity. According to the NES, the experts' scores on entrepreneurial education at school level (the extent to which training in creating or managing SMEs is incorporated within the education and training system at primary and secondary levels) on the scale from 1 to 5 the highest scores have Netherlands (3.24), Denmark (3.1), Estonia (2.56), Lithuania (2.5), Sweden (2.4) and Luxembourg (2.38) [11][4].

According to GEM data, the results of the paper indicate that the perceived capabilities to start a firm are the greatest in Slovakia, Croatia, and Slovenia, and regarding the perceived opportunities to start a firm, Slovakia and Croatia are below the European average level as well as the experts' scores for entrepreneurship education. This opens the question of rationality about such a reality of such self-confidence (especially compared to Sweden). Sweden, the Netherlands, Denmark, Estonia, and Luxembourg note the above-average value of perceived opportunities rate and the highest scores of experts for implementing entrepreneurship education in the school curriculum. This explains their approach and the importance they attach to entrepreneurial education as a priority of national policy through separate strategies for entrepreneurial education, the allocation of financial resources from the general budget for entrepreneurship education and the provision of education and training for teachers for its successful implementation [9]. Also, those countries that have a high standard of living, their economies are based on innovation factors, ranked among the most competitive in Europe [8] and are considered as those of advanced democracy, unlike Greece, Bulgaria and Croatia whose economy depends primarily on the development and improvement of institutions, infrastructure, macroeconomic stability, health, and primary education, and where people are still struggling with too much bureaucracy to start a business or their intentions to start a business are primarily based on the necessity drivers nor because of perceived opportunities.

Furthermore, Table 1 shows the correlation of perceived opportunities rate, perceived capabilities rate, entrepreneurial intentions rate and experts' scores on the entrepreneurial education at the school level. In Table 1 the value of the Pearson Correlation coefficient is shown, as well as significance (Sig.). The sample size is n=27 which represents the EU Member States.

Results show that the correlation between the variables is not positive in all cases. The correlations between perceived opportunities rate and entrepreneurial intentions rate is negative (-.134) and not statistically significant at $p<0.01$. Thus, we reject H1 hypothesis. Furthermore, the correlation between perceived capabilities rate and entrepreneurial intentions rate is positive (.243), suggesting that people who believe they have the required skills and knowledge to start a business have also higher entrepreneurial intentions. But the relation is too weak to be statistically significant at $p<0.01$. Therefore, the H2 hypothesis is rejected. Regarding H3, the correlation between perceived opportunities rate and experts' scores on entrepreneurial education at school level is positive (.551) and statistically significant at $p<0.01$. Based on the above-presented results the hypothesis H3 can be accepted. The correlation is shown in Graph 1.

[4] In Appendix are data presented in detail.

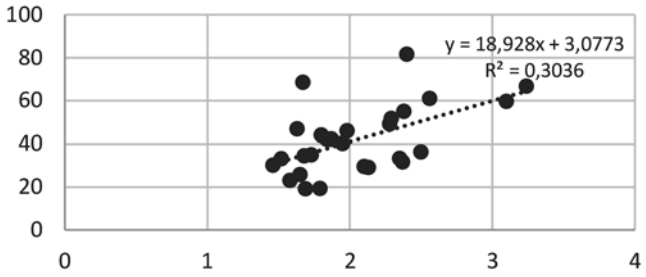
Correlations

		p_opportunities	p_capabilities	e_intentions	e_scores
p_opportunities	Pearson Correlation	1	,031	-,134	,551**
	Sig. (2-tailed)		,878	,504	,003
	N	27	27	27	27
p_capabilities	Pearson Correlation	,031	1	,243	-,139
	Sig. (2-tailed)	,878		,222	,488
	N	27	27	27	27
e_intentions	Pearson Correlation	-,134	,243	1	,022
	Sig. (2-tailed)	,504	,222		,914
	N	27	27	27	27
e_scores	Pearson Correlation	,551**	-,139	,022	1
	Sig. (2-tailed)	,003	,488	,914	
	N	27	27	27	27

** Correlation is significant at the 0.01 level (2-tailed).

Source: made by the authors

Table 1: Correlation coefficients



Source: made by the authors

Graph 1: The relation of perceived opportunities and experts' scores on entrepreneurial education at the school level in the EU

In addition, the regression analysis for H3 was done, where perceived opportunities rate is the dependent variable and experts' scores on entrepreneurial education at school level is the independent variable. Below Table 2 shows model summary and Table 3 the coefficients.

According to the results the regression coefficient (β_1=18.928) is positive and statistically significant (at $p<0.05$). The correlation coefficient R between the dependent variable and the independent variables is 0.551. Furthermore, the determination coefficient (adjusted R^2=0.276) indicates that more than 27.6% of the variance of the perceived opportunity rate is explained by the independent variable included in the model.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,551[a]	,304	,276	13,37834

[a] Predictors: (Constant), e_scores

Source: made by the authors

Table 2: Model Summary

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
B		Std. Error	Beta			
1	(Constant)	3,077	12,072		,255	,801
	e_scores	18,928	5,734	,551	3,301	,003

[a] Dependent Variable: p_opportunities

Source: made by the authors
Table 3: Coefficients

4. CONCLUSION

In the modern world, entrepreneurship represents an important step for economic development and competitiveness of the economy. In order to foster entrepreneurial activities, the European Commission supports entrepreneurial education to encourage entrepreneurial intentions among young people. The Commission states that entrepreneurship is a skill that can be learned and that entrepreneurship education should be promoted from an extracurricular to an integral part of the curriculum. According to the situation review in the European Union, there is no universal approach for entrepreneurship education. Entrepreneurship education still differs from country to country. Some member states have been devoted to this goal for more than a decade, while others are only starting to incorporate entrepreneurial education into their education policies. In addition, entrepreneurship education is still very dependent on other conditions from the entrepreneurship ecosystem. It depends on government strategies, programmes and finance what imposes an obligation on other member states to familiarize themselves with the best practices of European countries that are referring to the concept of education for the development of entrepreneurial competencies, which would lead to greater entrepreneurial intentions.

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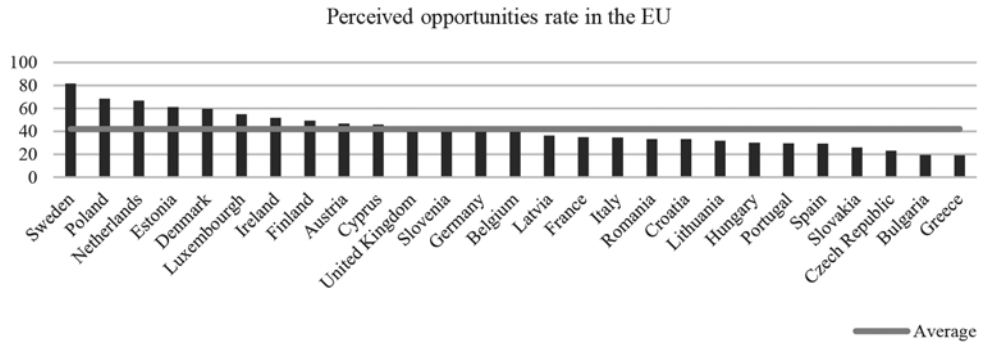
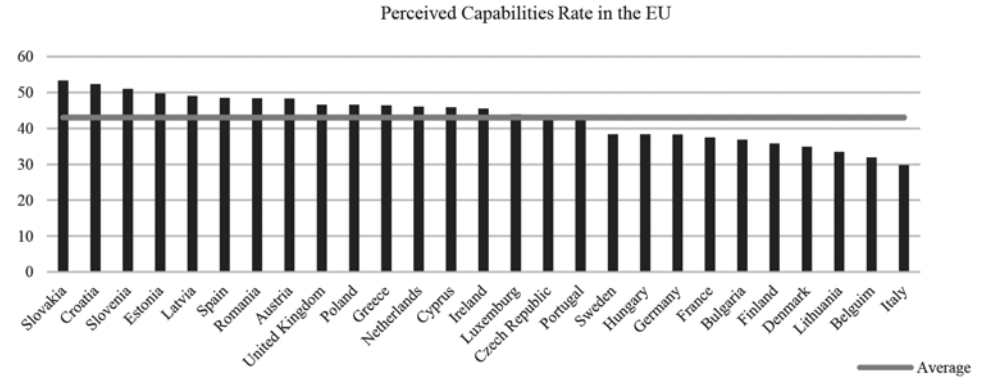
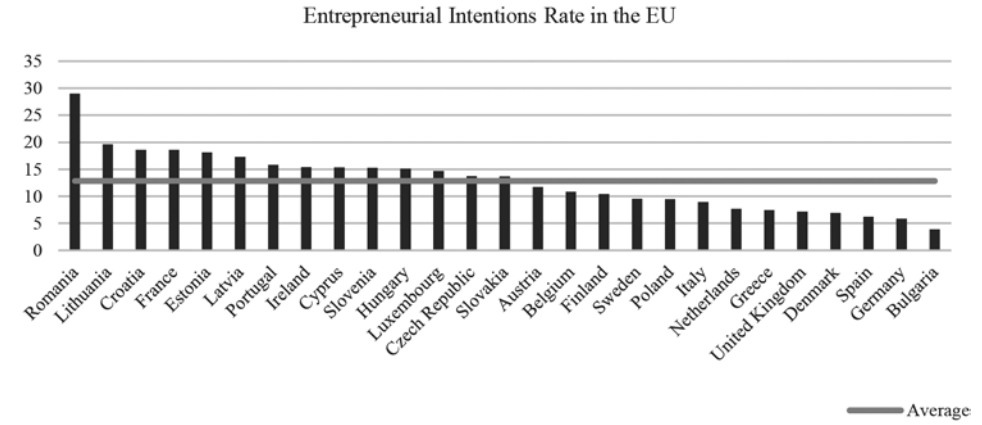
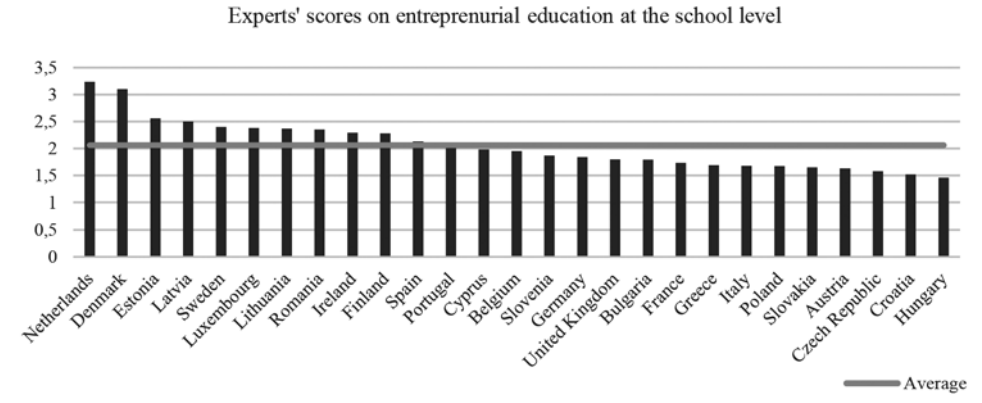
APPENDIX









Source: made by the authors according to the GEM data

ON THE REGIONAL DIFFERENCES IN FINANCIAL LITERACY OF THE UNIVERSITY STUDENTS*

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Abstract: *Financial literacy belongs to the key components of education for life in modern society and its importance growths every day. Various research studies on this issue have shown that there is a gap among the different sections of people such as men and women, young and adults, rural and urban and also many other categories of people. This article focuses on the university students in former Czechoslovakia that has before 25 years been split into two separate countries. The questionnaire survey method was applied to determine the average score of financial literacy among the students of six different universities. The statistical analysis has shown a surprising significant shift between both countries and as well between regions.*

Keywords: *Financial literacy, questionnaire survey, university students, Czech Republic, Slovakia.*

1. INTRODUCTION

Our lives in the modern world are full of decisions, and many of them have financial consequences. Some of them are routine everyday decisions, like deciding whether to go into the work by public transport or to walk. In the evening we can decide whether to eat at home or go out for dinner. Besides these simple situations, we less frequently meet situations with deeper consequences. We have to decide if accept or refuse new job opportunity, we select a bank, where to keep our personal finance. Only a few times in our life we decide in situations with whole life consequences, like participating in the pension schemes. How the world, and especially the financial markets, and financial products become more complex, these decisions require a more sophisticated approach, higher level of financial knowledge and skill. By other words, it requires a growing level of financial literacy.

The financial literacy is in general considered as the ability to comprehend finance. A growing number of research works provide alternative approaches to the notion of the financial literacy. For example Giesler & Veresiu define in [1] the financial literacy as the ability to understand how money works in the world: how someone manages to earn or make it, how that person manages it, how he/she invests it (turn it into more) and how that person donates it to help others. Mandell in [2] defines, that financial literacy is „the ability to evaluate the new and complex financial instruments and make informed judgments about both: choices of instruments and extent of use that would be in their own best long-run interests". For purposes of our article, we adopt the concept of the financially literate person in accordance with [3]. „It is a man who uses his ability to make a qualified judgment on the basis of the knowledge, skills and experience gained thus enabling him to smooth financial security throughout life."

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More studies have documented geographic differences in financial literacy. We can mention [4] where is presented the geography of the financial literacy in the USA. The results show that "The states with the highest levels of financial literacy tend to be located across the northern half of the country, while the states with lowest levels of financial literacy are in the eastern and southern parts of the country." The results of this study also show negative correlation between the financial literacy average score and the poverty level in the single states. Research work [5] has documented geographic differences in financial literacy among Italian regions. They have shown, that industrial Northern regions prove higher level of financial literacy than Southern regions. Similarly, Klapper & Panos studied in [6] large geographical disparities in the level of financial literacy in Russia. The authors have proved that these disparities can be explained by living in urban and rural areas.

The present paper focuses on the situation in the Czech Republic and in Slovakia. One of the aims is to compare the situation in both countries, which formed one federation in recent history. Former Czechoslovakia split into two sovereign states 26 years ago, so we are interested in possible changes. The second aim is to compare the development in the urban and rural regions in both countries and identify the differences if any.

2. METHODS

In order to obtain necessary data about the financial literacy of the university student, we have applied the questionnaire survey method. The questionnaire included two sections, one of them concerned in the socio-demographic information and the second part contained a set of questions that focused on the financial problems. The first part of our questionnaire included questions about the age, gender, field, and form of study (full-time or part-time) and residence of the respondents. We collected as well as information about their previous financial education and their attitudes to financial literacy, namely the importance they accredit to financial literacy and their self-appraisal.

The problems solved in the second part have covered the following four categories of financial literacy:

- Time value of the money and inflation perception,
- Annuities and debt repayment,
- Investments and risk,
- Decision making.

All problems were presented in the form of the multiple-choice questions with four response options. Only one of the options was always the correct answer, two options were the incorrect answers, and the last choice was an „I do not know" option.

Our aim was to detect, compare and explain the regional differences in financial literacy. It was interesting to compare average scores in both countries as they formed one whole in recent history. So, we can observe some differences in financial literacy development in the last decades. Therefore, our first step was comparing the average scores attained in Czech Republic and Slovakia.

In the sake of attaining relevant results, we have selected from our sample only the regions with at least 40 respondents. After calculating the average scores of correct answers for each research participant we are ready to apply the statistical testing of our research hypotheses.

To compare the average performances between single regions we have used the Welch two sample t-test in the form of one side alternative. It enabled to compare the selected regions each to each. In order to compare all selected regions, we put in use method of analysis of variance and Tukey HSD test.

3. RESULTS

We conducted the research at six universities and we targeted the students of similar study programs. The questionnaires were completed by management students and informatics students in both full-time and part-time study. So, we collected 1 031 filled questionnaires from 1 250 distributed items. It represents a relatively high response rate of 82.48%.

The sample contains 637 students with residence in the Czech Republic and 394 students with residence in the Slovak Republic, which is approximately proportional to the ratio of the inhabitants in both countries. Among the respondents, there have been 494 students of the management science and 537 students of the informatics. What is concerning the gender, there was 625 males and 406 females.

The first challenging question was to examine the difference between Czech and Slovak students. We summarize the results of the Welch t-test in table 1. We see the average score in Czech Republic is 50.4%, while in Slovak it makes only 43.1%. The corresponding *p*-value is less than 10^{-8}, so we can reject the zero hypothesis about the performance differences. On the contrary, we can with a very high confidence level conclude, that the average performance in the Czech Republic is significantly better than in Slovakia.

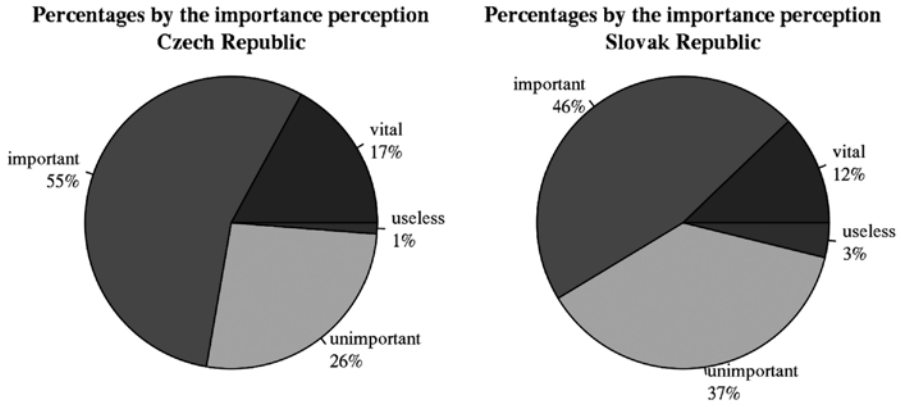

Figure 1: Percentages of the population in Czech Republic and Slovakia according to financial literacy importance perception. *(Source: own elaboration.)*

Country	***Mean***	***t-statistics***	***p-value***
Czech Republic	50.43	2.8548	0.006468
Slovakia	43.07		

Table 1: Results of the *t*-test for equality of the average scores in Czech Republic and Slovakia. *(Source: own elaboration.)*

In order to explain possible reasons for the difference in the scores, we analyzed both samples by the importance of financial literacy perception. The percentages are graphically presented in figure 1. We can easily recognize, the portions of students that consider financial literacy to be vital or important, are much higher in the Czech Republic. We confirmed these findings by Z-test of the population proportions. The results are outlined in table 2.

Importance level	***Country***	***Percentage***	***Z-statistics***	***p-value***
Vital	Czech Republic	17.04	3.1323	0.03838
	Slovakia	12.18		
Important	Czech Republic	55.23	5.5016	0.009499
	Slovakia	46.47		
Unimportant	Czech Republic	26.49	10.31	0.0006616
	Slovakia	37.50		
Useless	Czech Republic	1.23	4.774	0.01445
	Slovakia	3.85		

Table 2: Results of the Z-tests for the population portions according to financial literacy importance levels perception. *(Source: own elaboration.)*

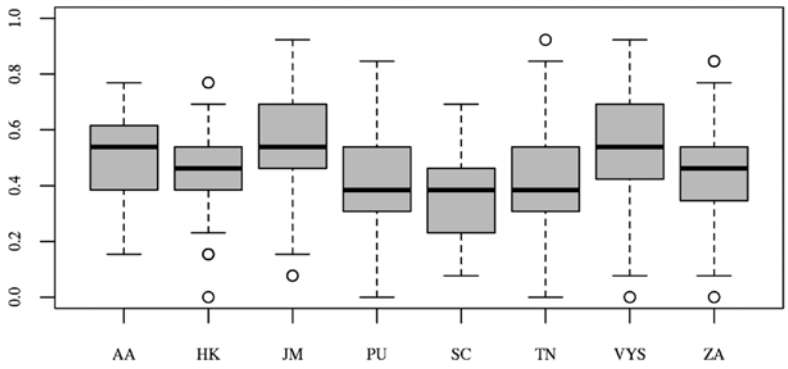

Figure 2: Box plots for the financial literacy scores by regions. Region names abbreviated: AA=Prague, HK=Hradec králové, JM=South Moravia, PU=Pardubice, SC=Middle Czech, TN=Trenčín, VYS=Vysočina and ZA=Žilina. *(Source: own elaboration.)*

As we have already mentioned, we requested for at least 40 respondents, to include the region in a comparison of the differences. Only six self-governing regions in the Czech Republic and two regions in Slovakia have met this criterion. In the Czech Republic, it was explicitly Prague - the capital city, the Central Bohemian region, the Hradec Králové Region, the Pardubice Region, the Vysočina Region, and the South Moravian Region. Only two, the Žilina and Trenčín regions, fulfilled this condition in Slovakia. The average scores are summarized in table 3.

Region	***Average score***	***Region***	***Average score***
Prague	51,6%	Middle Czech	39.6%
Hradec Králové	46.5%	Vysočina	55.2%
South Moravia	55.5%	Trenčín	42.4%
Pardubice	42.3%	Žilina	44.8%

Table 3. Average scores attained in single regions. *(Source: own elaboration)*

The box plots in figure 2 illustrate graphically the distribution of the scores achieved in the single regions. There we can observe that participants in three regions, namely Prague, South

Moravia and, Vysočiina region attained better results than the other. We confirmed this opinion by Welch t-test, whose results are presented in tables 3-5. We confirmed this opinion by Welch t-test, whose results are presented in tables 4-6. Due to a large number of pairs we had to compare, we present here only the pairs, where the zero hypothesis was rejected. On the opposite side of the results, we see another three regions, namely Middle Czech, Pardubice and, Trenčín. The box plots in figure 2 show the lower value of the attained scores median.

Region	***deg. of freedom***	***t-statistics***	***p-value***
Hradec Králové	83.677	1.5122	0.06712
Middle Czech	78.995	3.1981	0.0009955
Pardubice	78.707	2.8391	0.002877
Žilina	51.548	2.3826	0.01046
Trenčín	86.051	2.732	0.003818

Table 4: Results of the *t*-test for the average scores in the Prague region and regions with significantly worse results. *(Source: own elaboration.)*

Region	***deg. of freedom***	***t-statistics***	***p-value***
Hradec Králové	122.11	3.7317	0.000145
Middle Czech	58.957	5.4552	$5 \cdot 10^{-7}$
Pardubice	162.2	5.8522	0.000013
Žilina	380.66	6.6399	$5 \cdot 10^{-11}$
Trenčín	150.29	5.4495	$1 \cdot 10^{-7}$

Table 5: Results of the *t*-test for the average scores in the South Moravia and regions with significantly worse results. *(Source: own elaboration.)*

Region	***deg. of freedom***	***t-statistics***	***p-value***
Hradec Králové	65.875	2.1416	0.01797
Middle Czech	72.232	3.5596	0.0003307
Pardubice	61.557	3.2388	0.0009683
Žilina	45.43	2.8548	0.003234
Trenčín	66.366	3.1544	0.001208

Table 6: Results of the *t*-test for the average scores in the Vysočina region and regions with significantly worse results. *(Source: own elaboration.)*

Performing the analysis of variance and Tukey HSD test enables to divide the regions into three disjoint groups. These groups contain comparable regions with average scores that do not significantly differ. These groups together with corresponding confidence intervals for the true difference in average scores are presented in table 7. Due to a large number of all pairs, there are present only the cases, when the zero hypotheses are not rejected and the 95% confidence interval contains 0.

From the results we easily see there are three groups of regions with similar average performance. The first group, with the highest level of financial literacy contains the regions of south Moravia, Vysočina and Prague. All these three regions have achieved higher average score than whole state average. The regions Hradec Králové, Pardubice and Žilina form the second group. Two of them are Czech and their average performance is under the whole state average and Žilina attained average score higher than whole Slovakia average. Remaining two regions – Middle Czech and Trenčín form the third group with the worst results. Their averages are deep under the whole state averages.

Regions	***Difference***	***Lower bound***	***Upper bound***
Pargue – South Moravia	-0.03920	-0.12179	0.04338
Prague – Vysočina	-0.03598	-0.14251	0.07056
South Moravia – Vysočina	0.00323	-0.08020	0.08665
Hradec Králové – Pardubice	0.04139	-0.03701	0.11980
Hradec Králové – Žilina	0.01697	-0.04845	0.08239
Pardubice – Žilina	-0.02442	-0.08500	0.03615
Middle Czech – Trenčín	-0.02784	-0.11993	0.06425

Table 7. True differences and 95% confidence intervals for the average scores' differences for single regions. Only regions with statistically significant different average scores included. *(Source: own elaboration)*

4. DISCUSSION

When the results are compared by nationality, they show better results for Czech students. This advantage arises partly from the fact that the Czech Republic has implemented a national financial literacy strategy. This strategy is in details presented in [7] p.1177, Table 1. The next significant characteristics of the Czech respondents is the higher importance level they attribute to financial literacy. How stated in (Kozubíková, 2017): „An important factor influencing the progress in financial literacy during education, we have detected the importance that the respondents attribute to the financial literacy". Thus, comprehending the importance of financial literacy can be crucial to the wasting of the gap between the two countries.

This statement is in accordance with results of the Z-test that rejected the hypothesis with the confidence level of 99%. It means, there is a big deficit in Slovakia in comprehending the importance to be financially literate. We have tested the university students who do not come to university as a blank slate. Therefore, the result shows that there is a large area for financial education at lower degrees.

If we compare individual regions that have achieved comparable results, we can see some common features. For the regions of Prague and South Moravia, there are large metropolises in their center. These are Prague, with more than 1 million citizens and Brno with approx. 0.5 million citizens. These metropolises become industrial centers with dynamic development. The emergence of major business centers gives more opportunities for contact with the financial sector and its modern tools. In addition, several universities are deployed and are also centers of education. Thus, the population has more opportunities to gain practical experience that contributes to higher financial literacy.

The second group with comparable results is formed by the regions that have regional capitals in their center. These regional centers have about 100 000 inhabitants. Each of them is the domicile of the university. Their industrial development is not as dynamic as the two major metropolises mentioned above. Actually, they are economic centers, with many large multinational investment projects in their vicinity.
For the last two regions, it is characteristic they do not have such prominent metropolises in their center. Prague is the regional capital of the Central Bohemia Region, but it is excluded as a separate region. Trenčín is a significantly smaller town than other regional capitals. Therefore, we can consider these two regions to be more rural than the others.

A remarkable exception is the Vysočina Region. This county corresponds, in all its characteristics, to the rural region. Its population density is the lowest in the Czech Republic. The share of urban population is also the lowest among all regions. Nevertheless, the average level of financial literacy reached the second highest level. This result included the Vysočina Region in the highest category.

The results of the descriptive statistics have shown, that there are regional disparities in financial literacy. Consistently with the foreign studies [4] – [6], we see the geographical distribution of financial literacy resembles quite closely that of economic development and industrial activity. This result is consistent also with the cross-country evidence of [9], showing a positive link between economic literacy and economic development.

5. CONCLUSION

Our research has confirmed two important facts. At first, the average score in financial literacy is significantly higher in the Czech Republic. This is the result of the educational strategy implementation and consequently higher importance that is attributed to the ability to be financially literate. At the same time, the research confirmed a higher level of financial literacy in the developed urban areas. This geographical distribution of financial literacy is consistent with other worldwide researches. This difference can be mitigated to a certain extent by more consistent implementation of the financial education program in rural schools of all grades.

Findings of our study provide some useful suggestions for policymakers and practitioners interested in targeting the better level of financial literacy. Better understanding the origins of the geographical differences in financial literacy is one of the possible directions of future research.

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THE CHALLENGES OF DIGITAL ECONOMY DEVELOPMENT IN SOUTH-EAST EUROPEAN COUNTRIES*

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Abstract: *The digitalization level of society and economy is growing in accordance with the rising acceptance and implementation of digital technologies and the transfer of social and economic activities to the Internet. Digital technologies and innovations are powerful, pervasive and have multiple, indirect impacts. These innovations are changing economies and markets, and reinventing relationships between organizations, suppliers and customers, thus becoming critical elements for growth, innovation and job creation. Both developed and developing countries are trying to put in place right enabling conditions in order to use all the innovation and growth opportunities offered by proper implementation of digital technologies in different sectors of national economy and society. This paper examines South East European (SEE) countries in transition readiness to develop digital economy by analyzing and comparing some of the key measuring indicators mainly connected with the infrastructure development, but also some complex measuring information and communication technology (ICT) indexes such as network readiness index and ICT development index.*

Keywords: *Digital economy, digital entrepreneurship, competitiveness, innovation.*

1. INTRODUCTION

The ongoing digital transformation of the economy and society holds many promises to spur innovation, generate efficiencies, improve production and services, and in doing so boost more inclusive and sustainable growth, either of developed or developing economies. Offered opportunities will not materialize automatically and may require policy action to make digital transformation work for growth and well-being. For selected countries in transition in South-Eastern Europe (Serbia, Croatia, Bosnia and Herzegovina, North Macedonia and Montenegro) faced with economic and financial constraints it is very challenging to put in place right enabling conditions in order to use all the innovation and growth opportunities offered by proper digital technology implementation in different sectors of national economy and society. Although in the past two decades information and communication technology have generally improved their performance and growth of ICT sector has been reasonable strong in SEE countries, they still need to reform their economies in the way that allows digital technologies to become "the great enabler" it can be [1].

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2. THE NEW DIGITAL BUSINESS ENVIRONMENT FOR SEE COUNTRIES

Today, the world is at a critical point in the ongoing digital transformation. Technologies continue to develop rapidly and are combined in novel and innovative ways, pushing digital transformation in new and often unpredictable directions. According to the European Digital Transformation Scoreboard 2017 [2], there are seven important digital technologies for doing successful business today and they are: mobile services, social media and cloud technologies, the Internet of things, cybersecurity solutions, robotic and automated machinery, big data and data analytics. The specificity of these digital innovations defined as The Fourth Industrial Revolution is that they bring about changes in the complete industry sectors, becoming in this way a key condition for further competitive business operations in the global market.

The exponential speed of developments, disruption across all major industries, and the impact on entire systems of production, management, and governance are what differentiate these developments from previous "industrial revolutions". The future holds an even higher potential for human development as the full effect of new technologies such as the Internet of things, artificial intelligence, 3-D Printing, energy storage, and quantum computing unfold [3].

To face with new challenging business environment, SEE countries need to put in place following policy directions [4]:

- **Awareness** that reformation toward digital is very comprehensive and profound. Digital economy isn't just about speeding up communication across borders or changing the skills workers need, it is about changing the very nature of consumption, competition and how markets operate;
- **Readiness** to embrace change determines the level of success in this digital world and can only happen by having pledged massive investment in future-oriented technologies, solutions, and business models;
- **Transformation** of traditional to digital economy requires widespread and systematic use of digital technologies by all stakeholders - individuals, businesses, and government. Though digital technologies are affecting every industry and business function, the impact and pace at which digitalization takes place differs across industries and businesses in selected SEE counties.

3. WHY ANALYZED SEE COUNTRIES NEED DIGITAL ECONOMY

As indicated in Table 1. digital technologies offer the solution for different economic challenges that SEE countries has to deal with in order to overcome stagnant or decreasing growth rates, rising unemployment and a worsening living standard of their citizens. SEE countries need new digital sources of growth and the importance of digital transformation of their economies is rising as it will enable further reform, modernization and innovation of different industry sectors. In order to face decreasing production and export challenges caused by inside or outside factors, SEE companies can use digital technologies to reduce business costs, improve internal management, optimize supply chains, making it easier to get goods and services to the market. Digital technology supported production and digital-based services have the potential to create jobs and advance the economic goals of SEE countries.

Digital technologies as a part of the solution for a number of problems and challenges for* SEE *countries	**SEE *countries suffer from these key barriers***	***Policy attention should be on***
SEE countries need new sources of growth	Lack of policy attention	Digital technologies and the process of digital transformation should be a key priority for national governments
A severe lack of productivity, lack of competition and growth	Businesses find it difficult to operate in the new ICT based manner, markets are closed and monopolized	Digital transformation of companies and liberalization of markets
Low level of innovation	Decreasing R&D activities, number of researchers, brain drain	Increase investment in education, research and development especially in digital technologies
High unemployment levels	Jobs lost in the process of privatization, young unemployment	Active labor market policies, skills, life-long learning and education
Inefficient and expensive state	Low productivity of public sector	Support e-government development
Transforming SEE countries to a digital economy	Lack of awareness about digital technology potentials and risks	Create digital technology supportive environment

Table 1. Digital technologies as a solution for economic challenges in SEE countries
Source: adapted by the authors according to [5].

4. SEE COUNTRIES PROGRESS IN DIGITAL TRANSFORMATION

Progress to digital economy in selected SEE countries will be analyzed by using and comparing some key infrastructure development indicators, indicators of ICT usage, but also complex measuring ICT indexes such as Network readiness index or Composite ICT development index. Except Republic of Croatia who has become a full EU member state since 2013, all analyzed countries (Republic of Serbia, North Macedonia, Montenegro and Bosnia and Herzegovina) have been taking part in an ongoing process of the enlargement of the European Union [1]. The collecting and comparing these data were possible as selected countries base their statistics in information society area on Eurostat methodology.

Fundamental indicators of the evolving digital economy in SEE countries are the extent to which enterprises and people have affordable access to relevant ICTs and digital solutions, and whether they make productive use of them. While ICT uptake is improving, the variations in the extent to which businesses and individuals are making effective use of ICTs need to be addressed [6].

Indicators of access to ICT – Affordable access to different ICTs in selected countries are analyzed by using the following indicators: fixed-telephone subscriptions, mobile-cellular subscriptions, fixed broadband subscriptions, mobile broadband subscriptions, households with Internet access, individuals using the Internet, enterprise using the Internet (Table 2).

	Croatia	North Macedonia	Montenegro	Republic of Serbia	Bosnia and Herzegovina	EU28
Fixed lines per 100 populations (%)						
2010	39,3	20,2	27,7	41,4	24,7	40,0
2014	35,0	18,9	26,6	39,6	22,2	38,3
2017	33,5	17,3	24.2	37,5	21,7	43,0
Mobile subscriptions per 100 populations (%)						
2010	143,5	106,1	173,9	132,0	87,5	124,4
2014	104,0	108,7	163,8	130,0	90,0	120,5
2017	104,5	106,2	163,0	122,1	91,3	123,0
Fixed broadband subscriptions per 100 inhabitants (%)						
2012	18,3	12,5	8,3	11,2	8,2	25,7
2014	20,7	13,7	8,4	12,9	10,6	28,6
2017	23,0	16,8	16,7	15,6	14,2	34,3
Mobile broadband subscriptions per 100 inhabitants (%)						
2012	15,5	6,5	22,0	4,1	9,2	54,2
2014	53,9	25,1	27,5	52,1	12,2	69,3
2017	68,5	49,5	31,0	66,4	27,0	72,3
Internet use by individuals (%)						
2010	54,0	52,0	37,5	40,9	42,7	68,0
2014	69,2	68,1	64,5	62,5	60,8	78,0
2017	77,1	75,0	71,3	70,3	69,5	84,0
Households with Internet access at home (%)						
2010	56,0	46,0	51,4	39,0	29,8	70,0
2014	68,0	68,0	63,6	62,8	47,5	81,0
2017	76,0	70,0	70,0	65,0	57,0	87,0
Enterprises with Internet access (%)						
2010	95,0	84,0	95,0	96,8	-	94,0
2014	96,0	93,0	98,0	100	-	97,0
2017	96,0	-	99,1	99,7	99,3	97,0
Enterprises with WEB sites (%)						
2010	61,0	43,0	62,2	67,5	-	67,0
2014	66,0	53,0	73.3	74,0	63,2	74,0
2017	71,0	52,0	76,4	75,2	67,5	77,0

Table 2. Indicators of access to ICT
Source:[7],[8], [9], [10],[11].

Although connectivity has improved greatly in all analyzed countries, gaps still remain between them and the average value of selected indicators for EU28. The decline in the total number of fixed telephone lines in the analyzed SEE countries have been accelerated since 2012, thanks to continued fixed-to-mobile substitution. The total number of mobile subscriptions rises. Growth rates are not as high as before owing to penetration going over 100% in all countries except Bosnia and Herzegovina. The fixed broadband market in the SEE countries measured by the number of active connections grew, but still is below the European average of 34,3% in 2017. Mobile broadband is the fastest growing and most dynamic segment of the electronic communications market in this region as well. In Serbia and Croatia, the mobile broadband penetration rate exceeded 65% in 2017, but still is lower that EU-28 average.

In EU28 87% of households had Internet access in 2017. The number of households with Internet access is rising in analyzed part of SEE region as well. The highest proportion of households

with Internet access in 2017 was recorded in the Croatia (76%) and the lowest in Bosnia and Herzegovina (57%).

Internet usage by individuals is over 70% in 2018 in all analyzed SEE countries, but still below the EU average penetration rate of 85%. Situation in business sector indicate that like in EU28 nearly all enterprises in SEE region with at least 10 persons employed had Internet access in 2017. Close to three quarters (75%) of enterprises had a website and were visible on the Internet in 2017.

Indicators of ICT usage – are more modest and indicate that although access to the Internet as the cornerstone of developing e-business solutions exists in SEE countries the progress in usage of various e-business tools is rather slow (Table 3).

	Croatia	North Macedonia	Montenegro	Republic of Serbia	Bosnia and Herzegov-ina	EU28
Individuals						
% of individuals using Internet for internet banking						
2014	28	9	-	13,5	-	44
2017	33	8	4	16	-	51
% of individuals using the Internet for ordering goods or services						
2014	28	11	7	21,6	-	50
2017	29	15	13	31	-	57
Enterprises						
% Enterprises receiving orders online (at least 1%)						
2014	-	5	24,3	22,9	-	15
2017	18	-	26,9	26,9	-	18
% Enterprises purchasing online (at least 1%)						
2014	-	4	14,7	40,3	-	22
2017	13	2	26,7	41,9	18	26
% Enterprises using ERP						
2014	15	21	-	-	-	31
2017	26	-	-	18	-	34
% Enterprises using CRM						
2014	26	6	-	21	-	17
2017	18	-	14	24	-	20
% Enterprises using Cloud computing						
2014	22	11	-	3	-	18
2018	30,7	-	18	15,4	8,3	26,2

Table 3. Indicators of ICT usage
Source: [8],[10],[11],[12],[13].

Despite having WEB sites, around a quarter of companies in selected SEE countries use the Internet for purchasing or selling online. In this way SEE companies do not properly use the potential of new technologies for sharing information electronically and automatically between different business functions, both within a single enterprise and/or in cooperation with suppliers or customers. The same situation is with individuals poorly using internet for e-commerce or e-banking activities.

The share of EU28 enterprises that used ERP software applications stood at 34 % in 2017, with a considerable difference in its use between small enterprises (those with 10-49 persons employed; 28 %) and large enterprises (those with at least 250 persons employed; 76 %) [12]. The same difference between big and small companies is present in SEE region as well, only the share of companies using ERP systems is even lower. It is believed that the adoption of CRM improves marketing and sales performance by improving customer service and customer relationships. Some 33 % of EU28 enterprises used CRM software applications in 2017, with the share among small enterprises (30 %) about half that recorded for large enterprises (62 %) [12]. Enterprises in analyzed SEE countries are very slow in accepting CRM practices in their work and are lagging behind EU average. The same situation is with low implementation of cloud services in SEE region (Table 3).

Composite Indexes of digital economy development - The achieved level of digital transformation in SEE countries can be analyzed by using the different indicators of digital transformation published by various international organizations and bodies. These organizations apply different systems for monitoring the development of the digital economy and society that have been accepted as relevant. Their methodologies are changing and improving in line with the dynamics of ICT development. Table 4 presents some of these methodologies and comments and compares the position of different SEE countries in the relevant lists following the progress they are making in different aspects of digital technology implementation.

Despite evident progress in the digital technology implementation, SEE countries continue to suffer from low rates of e-business, a weak regulatory framework and a poor business and innovation environment. These factors affect the capacity to further leverage ICTs to boost their economies and benefit from higher rates of products and service innovation [18]. Croatia being an EU member country is taking a leading position on all analyzed lists, and all other countries (Serbia, Montenegro, North Macedonia and Bosnia and Herzegovina) are usually very closely positioned and from year to year are differently scored.

The data analyzed indicated that despite the fact that all selected SEE countries have a good foundation for the digital economy development, they are still positioned in the so-called „new digital divide“. This means that although digital technologies are becoming increasingly affordable in their economies, these countries have not enough capabilities and capacity to [19]:

- Use digital potentials and improve the business quality of their domestic enterprises,
- Realize the real impact of digital technology implementation on the transformation of their economy and society.

The way out of the digital divide cannot be based only on investment in digital technologies. Although important, access is only one ingredient in the recipe for success. The effective use of digital technologies and data requires additional investments in complementary knowledge-based capital (KBC)-in particular in (organization-specific) skills and know-how, and in organizational change including new business models and processes. Those with low or no formal education lack the necessary skills and know-how to take advantage of digital technologies or to introduce the changes needed for digital technology productive use in businesses and across society.

International Telecommunication Union - Composite ICT Development Index (IDI)

What it follows: Over 11 indicators divided into 3 fields compare the level of ICT development between different countries. The progress of the country on the IDI list depends on a combination of three factors: availability and accessibility of infrastructure (IDI Access Sub-Index), high level of ICT use (IDI Use Sub-Index), the ability to use ICT effectively, which is directly conditioned by the quality of the available workforce (IDI Skills Sub-Index).

Rank on the list (in brackets total number of analyzed countries)

Year	Serbia	Montenegro	Croatia	BIH	North Macedonia
2016 (176)	**55**	**56**	**42**	**81**	**68**
IDI Access SI	53	58	41	85	69
IDI Use SI	59	63	41	76	65
IDI Skills SI	48	54	38	79	84
2017 (176)	**55**	**61**	**36**	**83**	**69**
IDI Access SI	53	59	39	86	69
IDI Use SI	63	66	41	79	67
IDI Skills SI	49	57	38	82	91

World Economic Forum - Network Readiness Index (NRI)

What it follows: It assesses the degree to which a particular country is ready to take advantage of the opportunities and benefits offered by the digital economy through a composite index made of four main categories (sub-indexes): 1) sub-index for environments (political and regulatory environment, business and innovation environment) 2) sub-index of readiness (infrastructure indicators, accessibility, skills); 3) sub-index of use (use by individuals, enterprises, states), 4) sub-index of effect (economic impact, social impacts).

Rank on the list (in brackets total number of analyzed countries)

Year	Serbia	Montenegro	Croatia	BIH	North Macedonia
2014 (148)	80	52	46	68	57
2015 (143)	77	56	54	-	47
2016 (139)	75	51	54	97	46

UN, e-Government Development Index (EGDI)

What it follows: It explores and measures the development of e Government, as a significant part of the development of an information society with return effects on the overall social development. In addition to e-government in the narrow sense, the UN monitors related issues such as Open government data, e-participation, and the like.

Rank on the (in brackets total number of analyzed countries)

Year	Serbia	Montenegro	Croatia	BIH	North Macedonia
2016 (188)	39	47	37	92	69
2018 (186)	49	58	55	105	79

McKinsey company - Country Digitization Index

What it follows: It aggregates more indicators from different areas such as ICT offer, innovation, and usage by individuals, companies, governments, to compare the level of digitization of selected countries through them. According to the results of their research, what is happening in the real world reflects on the digital world, so the intensity of the digitization of countries is under the significant influence of political and overall socio-economic changes and developments.

Rank on the list (in brackets total number of analyzed countries)

Year	Serbia	Montenegro	Croatia	BIH	North Macedonia
2016 (243)	127	140	57	179	148
2017 (243)	114	133	60	164	164

Table 4. Different methodologies for monitoring the development of digital economy and society in SEE countries. *Source: [14], [15], [16], [17].*

4. CONCLUSION

Digital technologies are one of the most important sources of growth for national economies. They enable economies to create more jobs, improve people's lives and build better and greener societies. However, the analysis performed in SEE countries proved that despite progress in the last decade in the creation of basic preconditions for the digital economy, the huge potentials of digital technology still remain untapped.

Continuous work on improving the basics for the development of the digital economy and society in analyzed SEE countries has three essential components: TECHNOLOGICAL which deals with further development and improvement of the quality of the existing physical infrastructure, CAPITAL which provides financing of activities and deals with the availability of the necessary capital and REGULATORY which creates the legal infrastructure for a new business environment.

Closing the digital divide is a pressing concern for all governments in selected SEE countries and it is a significant opportunity for growth in today's digital economy that should not be neglected. There is a need to stimulate a more innovative and entrepreneurial mind-set and accelerate smarter use of 'digital' technology in various sectors of the economy. Education and innovation hold high importance in this respect.

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DO DEVELOPING COUNTRIES FACE THE "MIDDLE INCOME TRAP"? EVIDENCE FROM A NOVEL UNIT ROOT TEST

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Abstract: *One of the recent and attractive subjects of the economic literature is the "middle income trap". The condition of middle income trap is defined for the countries which are categorized as middle income countries failing to move up to the high income category because of their slow growth rates. The present paper investigates the existence of middle income trap for developing countries which are Algeria, Belize, Brazil, Botswana, China, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, Fiji, Gabon, Guatemala, Guyana, Jamaica, Jordan, Malaysia, Mexico, Paraguay, Peru, South Africa, St. Vincent and the Grenadines, Suriname, Thailand, Turkey and Venezuela, employing a novel unit root test with smooth break and nonlinear adjustment proposed by [3]. We follow the methodology of middle income trap proposed by [5] and determine the United States as the reference country. The data set involves annual gross domestic product (GDP) per capita of developing countries and the United States for the period from 1960 to 2017. Then, logarithmic per capita GDP gap series of each country is calculated in order to test the middle income trap for developing countries. The empirical results indicate that Belize, Botswana, Colombia, Costa Rica, Dominican Republic, Ecuador, Guyana, Jamaica, Jordan, Mexico, Peru, South Africa, St. Vincent and the Grenadines, Turkey and Venezuela are in the middle income trap. Therefore, we find out an evidence of a middle income trap in 15 out of 26 upper middle income countries.*

Keywords: *Middle income trap, developing countries, Hepsag Unit Root Test*

1. INTRODUCTION

The phenomenon of middle income trap (hereafter, MIT), which is firstly introduced by [1], is one of the recent and attractive subjects in economic literature. The term MIT commonly refers to countries that have experienced rapid growth, which enabled them to reach the status of a middle income country but have not been able to finally catch up to the developed countries and achieve high income status; instead, they became caught in the middle income range ([2]: 508-509). Therefore, it can be stated that for a middle income country, the expectation is not entering a status of recession after reaching a certain level of income.

The World Bank considers the "Atlas Method" for classification of the income categories of economies using GNI per capita levels. According to last calculation in 2017, the ranges for the GNI per capita are $995 or less for low-income economies; $996 and $3,895 for lower middle-income economies; $3,896 and $12,055 for higher-middle income economies and $12,056 or more for high-income economies. Based on these GNI per capita ranges, 34 countries are classified as low income, 47 countries are classified as lower-middle income, 56 countries are classified as upper-middle income and 81 countries are classified as high income economies for the current 2019 fiscal year.

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The MIT phenomenon has gained increasing attention in recent years, but the MIT has primarily handled as a political discussion in theoretical framework. [2] stated that there exist two groups of the MIT definition; the first definition is "theoretical definition" and the second is the "empirical definition". Theoretical definition focuses on the necessary political and institutional regulations required when a middle income country enters the middle-income trap and defines the MIT as a result of neglecting structural and institutional reforms. (see, [1]; [3]; [4]). In other respects, [5] suggested a time series definition of the MIT that was based on the club convergence, so the MIT phenomenon became an empirically testable issue.

Specifically, the methodology of [5] defines a natural logarithmic difference series $x_{i,t}$ that can be denoted as the logarithmic per capita income gap, in order to determine whether or not a country enters the MIT:

$$x_{i,t} = y_{i,t} - y_{r,t} \tag{1}$$

where $y_{i,t}$ represents the natural logarithm of country i's per capita income in year t and $y_{r,t}$ is the natural logarithm of base country's per capita income in year t. Ordinarily, we focus on the logarithmic difference series $x_{i,t}$ for the convergence hypothesis as mentioned by [6] and if $x_{i,t}$ series tends to zero as $t \rightarrow \infty$, the countries have the same expected growth path in terms of income level so they are converging. Conversely, $x_{i,t}$ series equals to non-zero constant as $t \rightarrow \infty$ to satisfy the MIT condition and if a country is in the MIT, the expected growth path in terms of income level would be different.

Oppositely, when $x_{i,t}$ series follows a random walk process and so has a stochastic trend; this implies that the country is not a candidate for a MIT. If the logarithmic per capita income gap series, $x_{i,t}$ has a stochastic trend, we can express that the country i's per capita income is decomposed from the base country's per capita income so the country i is not a candidate for a MIT.

The examination of MIT phenomenon relies on the unit root tests in time series framework. There exist so limited empirical studies on the existence of the MIT in extant literature using unit root testing procedure.

[5] investigated the existence of MIT for middle income countries using Augmented Dickey-Fuller (ADF), [7] (ZA) and [8] (LP) unit root tests and they found out that seven countries (Cuba, El Salvador Lebanon, Peru, Syria, Turkey and Thailand) were candidates to be in the MIT. [9] explored the existence of MIT for Emerging-7 (E7) countries using linear and nonlinear unit root tests and their empirical findings support that the E7 countries do not fall into the MIT.

The goal of the present paper is to investigate whether or not the developing countries are in MIT employing a novel unit root test which considers jointly for smooth break and nonlinear adjustment proposed by [10]. The present paper suggests a new unit root test to investigate the MIT for middle income countries.

The organization of the paper is as follows: in section 2 we present the econometric methodology and section 3 contains the data description and empirical results of the paper. The fourth and last section includes conclusions.

2. ECONOMETRIC METHODOLOGY

Empirically, the existence of MIT could be tested by investing the stationary properties of the logarithmic per capita income gap series mentioned above through the unit root tests. If the logarithmic per capita income gap series of country *i* follows a stationary process, it would be implied that country *i* faces the MIT. It is well known that conventional unit root tests such as Augmented Dickey-Fuller (ADF) have weakness in terms of failure to reject the null of a unit root.

[10] proposes a novel unit root testing strategy which considers jointly for structural breaks and nonlinear adjustment. The structural breaks are modeled by means of a logistic smooth transition function and nonlinear adjustment is modeled by means of an exponential smooth transition autoregressive (ESTAR) model. At the approach [10], the null hypothesis of unit root is tested against the alternative hypothesis of the nonlinear exponential smooth transition autoregressive (ESTAR) stationarity with smooth break. We consider three logistic smooth transition models by following [10]:

$$\textbf{Model A: } y_t = \alpha_1 + \alpha_2 S_t(\lambda,\tau) + v_t \tag{2}$$

$$\textbf{Model B: } y_t = \alpha_1 + \beta_1 t + \alpha_2 S_t(\lambda,\tau) + v_t \tag{3}$$

$$\textbf{Model C: } y_t = \alpha_1 + \beta_1 t + \alpha_2 S_t(\lambda,\tau) + \beta_2 t S_t(\lambda,\tau) + v_t \tag{4}$$

$$S_t(\lambda,\tau) = \left[1 + \exp\left\{-\lambda\left(t - \tau T\right)\right\}\right]^{-1} \tag{5}$$

where Model A, B and C represent the smooth break in intercept, the smooth break in intercept under a deterministic trend and the smooth break both in intercept and trend, respectively. $S_t(\lambda,\tau)$ is the logistic smooth transition function, based on a sample of size *T*. The parameter τ determines the timing of the transition midpoint and the speed of transition is determined by the parameter λ.

Hepsag's unit root test suggests for calculating the test statistics via a two-step procedure. In the first step, the nonlinear least squares residuals are obtained as following.

$$\textbf{Model A: } \hat{v}_t = y_t - \hat{\alpha}_1 - \hat{\alpha}_2 S_t\left(\hat{\lambda},\hat{\tau}\right) \tag{6}$$

$$\textbf{Model B: } \hat{v}_t = y_t - \hat{\alpha}_1 - \hat{\beta}_1 t - \hat{\alpha}_2 S_t\left(\hat{\lambda},\hat{\tau}\right) \tag{7}$$

$$\textbf{Model C: } \hat{v}_t = y_t - \hat{\alpha}_1 - \hat{\beta}_1 t - \hat{\alpha}_2 S_t\left(\hat{\lambda},\hat{\tau}\right) - \hat{\beta}_2 t S_t\left(\hat{\lambda},\hat{\tau}\right) \tag{8}$$

After obtaining the nonlinear least squares residuals in the second step, we apply the unit root test of [11] to the residuals obtained in the first step. [10] allows for a nonzero location parameter *c* by following [11] in the ESTAR model as the following form:

$$\Delta\hat{v}_t = \gamma\hat{v}_{t-1}\left(1 - \exp\left\{-\theta\left(\hat{v}_{t-1} - c\right)^2\right\}\right) + \varepsilon_t \tag{9}$$

where $\hat{v}_t$ is the estimated nonlinear least squares residuals in the first step. [10] recommends an application of a first order Taylor approximation for equation (9) and obtains the auxiliary regression shown at equation (10).

$$\Delta\hat{v}_t = \delta_1\hat{v}_{t-1}^3 + \delta_2\hat{v}_{t-1}^2 + \sum_{i=1}^{p}\psi_i\Delta\hat{v}_{t-i} + \varepsilon_t \tag{10}$$

In the auxiliary regression (10), the null hypothesis could be constituted $H_0: \delta_1=\delta_2=0$ against $H_1: \delta_1<0, \delta_2\neq 0$. We denote the value of test statistics as:

$\tau_{SNL\alpha}$ if Model A is used to construct the $\hat{v}_t$,
$\tau_{SNL\alpha(\beta)}$ if Model B is used to construct $\hat{v}_t$ and
$\tau_{SNL\alpha\beta}$ if Model C is used to construct $\hat{v}_t$.

The $\tau_{SNL\alpha}$, $\tau_{SNL\alpha(\beta)}$ and $\tau_{SNL\alpha\beta}$ test statistics which are used in testing for a unit root hypothesis against nonlinear and stationary with smooth break are obtained as follows:

$$\tau_{SNL\alpha} = \tau_{SNL\alpha(\beta)} = \tau_{SNL\alpha\beta} = \left(\hat{\psi}_{22} - \frac{\hat{\psi}_{21}^2}{\hat{\psi}_{11}}\right)\left(\hat{\delta}_2 - \hat{\delta}_1\frac{\hat{\psi}_{21}}{\hat{\psi}_{11}}\right)^2 + 1\left(\hat{\delta}_1 < 0\right)\frac{\hat{\delta}_1^2}{\hat{\psi}_{11}} \tag{11}$$

where $\hat{\psi}_{22}$, $\hat{\psi}_{11}$ and $\hat{\psi}_{21}$ are the elements of Variance-Covariance matrix.

3. DATA AND EMPIRICAL RESULTS

The data set involves annual per capita gross national product (GDP in dollars) of 26 upper middle income countries for the period from 1960 to 2017 and consists of Algeria, Belize, Botswana, Brazil, China, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, Fiji, Gabon, Guatemala, Guyana, Jamaica, Jordan, Malaysia, Mexico, Paraguay, Peru, South Africa, St. Vincent and the Grenadines, Suriname, Thailand, Turkey and Venezuela. The data are obtained from the World Bank Development Indicators database. We consider the base country as the United States so we collect the per capita GDP of the United States for the same period.

Then we calculate the logarithmic per capita income gap of each country as following:

$$x_{i,t} = \ln\left(\frac{per\ capita\ GDP_{i,t}}{per\ capita\ GDP_{US,t}}\right) \tag{12}$$

where per capita $GDP_{i,t}$ denotes the per capita GDP of country i in year t and $GDP_{US,t}$ represents the per capita GDP of the United States in year t.

We apply the [10] unit root test to per capita income gap of each country mentioned above considering Model C which allows the smooth break both in intercept and trend. The maximum lag length is determined through [12] as 10 and the optimal lag lengths are determined through the Akaike information criterion (AIC). The results of unit root test are presented at Table 1.[3]

[3] The WinRATS codes to employ empirical application are available upon request.

The unit root test results at Table 1 indicate that the null hypothesis of unit root cannot be rejected for Algeria, Brazil, China, Cuba, Fiji, Gabon, Guatemala, Malaysia, Paraguay, Suriname and Thailand at the 5% significance level. According to these results, there does not exist middle income trap in the upper middle income countries which are Algeria, Brazil, China, Cuba, Fiji, Gabon, Guatemala, Malaysia, Paraguay, Suriname and Thailand.

On the other hand, the null hypothesis of unit root is rejected for Belize, Botswana, Costa Rica, Dominican Republic, Jamaica, Mexico, Peru, South Africa, St. Vincent and the Grenadines and Turkey at the 5% significance level and is rejected for Colombia, Ecuador, Guyana, Jordan and Venezuela at the 10% significance level.

Based on the empirical results, it can be implied that the logarithmic per capita income gap of these countries follows a nonlinear ESTAR stationary process with smooth break. Thereby, Belize, Botswana, Colombia, Costa Rica, Dominican Republic, Ecuador, Guyana, Jamaica, Jordan, Mexico, Peru, South Africa, St. Vincent and the Grenadines, Turkey and Venezuela countries are in MIT.

Countries	Lag-Length	$\tau_{SNL\alpha\beta}$
Algeria	3	8.52149
Belize	1	28.92616*
Botswana	1	17.42442*
Brazil	2	9.48930
China	1	9.19763
Colombia	3	11.63384**
Costa Rica	3	15.22618*
Cuba	0	6.05391
Dominican Republic	5	23.03184*
Ecuador	3	10.85712**
Fiji	1	8.60288
Gabon	7	10.38980
Guatemala	0	6.17246
Guyana	0	11.83311**
Jamaica	2	29.07311*
Jordan	4	11.44866**
Malaysia	1	8.73537
Mexico	1	18.15259*
Paraguay	8	5.01457
Peru	5	14.45783*
South Africa	1	27.97768*
St. Vincent and the Grenadines	1	32.37432*
Suriname	2	2.31558
Thailand	1	9.33488
Turkey	0	32.96011*
Venezuela	2	10.65671**

Table 1: The Results of Hepsag Unit Root Test

Notes: * and ** indicates the rejection of the null of unit root at the 5% and 10% significance levels, respectively. The optimal lag lengths are determined through the Akaike information criterion (AIC).

4. CONCLUSION

The purpose of the present study is to investigate whether or not the developing countries are in middle income trap (MIT) employing a novel unit root test which considers jointly for smooth break and nonlinear adjustment proposed by [10]. The present paper suggests a new unit root test to explore the MIT for middle income countries.

The data set involves annual per capita gross national product (GDP in dollars) of 26 upper middle income countries for the period from 1960 to 2017 and consists of Algeria, Belize, Botswana, Brazil, China, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, Fiji, Gabon, Guatemala, Guyana, Jamaica, Jordan, Malaysia, Mexico, Paraguay, Peru, South Africa, St. Vincent and the Grenadines, Suriname, Thailand, Turkey and Venezuela. We consider the base country as the United States so we collect the per capita GDP of the United States for the same period. Then we calculate the logarithmic per capita income gap of each country in order to test MIT.

The empirical results indicate that Belize, Botswana, Colombia, Costa Rica, Dominican Republic, Ecuador, Guyana, Jamaica, Jordan, Mexico, Peru, South Africa, St. Vincent and the Grenadines, Turkey and Venezuela are in the middle income trap. We find out an evidence of a middle-income trap in more than half sample of developing countries. Therefore, we find out an evidence of a middle income trap in 15 out of 26 upper middle income countries. We can suggest for these countries focusing on the required political and institutional regulations to exit the middle income trap.

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THE LEARNING ORGANIZATION UNDERSTANDING IN DISRUPTIVE TIMES AND ITS IMPACT ON ORGANIZATIONAL PERFORMANCE: THE APPAREL INDUSTRY CASE

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Abstract: *Globalization or the rapidly changing economic environment is characterized by continual disruption and is shaped by the ever-changing conditions of the economy. Making use of the learning and knowledge concepts is among the most important conditions that provide enterprises the capability to become agile and quickly respond to change, thus earning a competitive advantage towards competitors. The Learning Organization concept has received increasing attention in organizational studies especially in the last two decades. It has emerged from the idea of "organizational learning", but it differs as in addition to learning of the organization it includes learning within the organization too.*

It is clear now that knowledge acquisition and the transfer of this knowledge to the organizations used to shape their own future is of vital importance for enterprise survival, and this acquired knowledge is one of the important factors that reduces the risks of profit losses by increasing the management capabilities of enterprises. On the other hand, organizational performance measurements play a crucial role for managers to be able to carry out their managerial functions and activities. Organizational performance measurements give a good grasp of both quantitative and qualitative elements that affect the overall enterprise performance. In this way, possible problems of low performing units are revealed and tackled.

The main purpose of this descriptive research is to measure the effect of learning organization understanding and framework on the organizational performance with special focus on the apparel industry. In this context, a questionnaire has been conducted to the personnel of the headquarters in some major companies operating in the apparel industry as a methodology used in this study to support our work. This study aims to shed light on the concept of learning organization and its applicability in the apparel industry as well as hoping that such a pilot study will contribute to the literature of Learning Organization and Organization Performance.

In line with previous research in other sectors it results that there exists a positive correlation between learning and transferring the accumulated knowledge to various units of the enterprise and the increase in overall organizational performance of enterprises.

Keywords: *Learning Organization, Organizational Performance, Apparel Industry, Emerging Countries.*

1. INTRODUCTION

Globalization or the rapidly changing economic environment is characterized by continual disruption and is shaped by the ever-changing conditions of the economy. Making use of the learning and knowledge concepts is among the most important conditions that provide enterprises the capability to become agile and quickly respond to change, thus earning a competitive advantage towards competitors.

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It is clear now that knowledge acquisition and the transfer of this knowledge to the organizations used to shape their own future is of vital importance for enterprise survival, and this acquired knowledge is one of the important factors that reduces the risks of profit losses by increasing the management capabilities of enterprises.

In an environment of increasing environmental turmoil and uncertainty, the survival of an organization is possible by the transition from the traditional structure adopting the 'command and control' approach to the Learning Organization which adopts 'communication and questioning-constructive criticism' approach.

Measuring the organizational performance of companies is very important for managers to carry out their planning functions for future activities. In addition, another benefit of conducting performance measurements for management is the possibility to examine both quantitative and qualitative elements. In this way, it will help to reveal possible problems of the units with low performance and ensure the continuity of the company.

Generally speaking, research studies may be categorized as exploratory, descriptive or explanatory research depending on the various purposes of research. In this research, descriptive and explanatory research will be used as the research type. In descriptive research people are interested in accurately depicting the status of events and situations. Meanwhile explanatory research deals with the establishment of causal relationships between variables. In line with the above, it is aimed that the findings of this study give us experimental information.

The core objective of this research is to analyze and measure the impact of the learning organization understanding on organizational performance. In this context, a questionnaire was prepared and implemented to the personnel working at the headquarters in two major companies operating in the textile sector in order to support this research. It is hoped that such a pilot study will contribute to the literature of Learning Organization and Organization Performance. In addition, this study aims to shed light on the concept of learning organization and its applicability in the textile sector. We hope that this study will be a guiding work for the future research of the learning organization understanding in other sectors or contexts too.

2. LITERATURE REVIEW

In this section a detailed literature review on the concepts that make up the basis for the research is shown referring to the relevant literature on learning organization and organizational performance.

Learning Organizations

Especially after the 90s, the *Learning Organization* understanding has gained increasing attention and importance. The concept of learning organization has been developed from the concept of "organizational learning", but the difference remains in that learning organizations include learning within the organization as well as the learning of the organization [21]. [4] define organizational learning as the process of defining and implementing the change required by the increase in the learning process and knowledge accumulation. However, this study is more concerned with the form of learning organizations rather than the organizational learning process.

In fact, John T. Dorsey in his study published in the beginnings of 1957, mentions about organizations as "learning networks", which may lead us thinking that the emergence of the learning organization concept dates back to the beginning of the second half of the 20th century [9]. However, after the 90s, the concept of learning organization started to be discussed in more details. Peter Senge first discussed this concept in his book titled "Fifth Discipline". In his opinion, Senge defines the concept of learning organization as a group of people who continuously enhance their creativity capacities with the desire to reveal or produce new things.

According to Senge, the learning organizations are the type of organizational structures in which people constantly develop their skills to reach the desired results, or to develop new ideas and through promoting a collective discipline rather than a bureaucratic discipline to help people learn how to learn altogether [17]. [17] sees 'System Thinking' as the ultimate goal of the Learning Organization or 'the fifth discipline' which is the result of the other four dimensions, respectively 'personal mastery', 'shared vision', 'mental models', and 'team learning'. Personal mastery stands for 'continually clarifying and deepening personal vision, focusing energies, developing patience, and seeing reality objectively'; shared vision stands for 'the ability to unearth shared "pictures of the future" that foster genuine commitment and enrollment rather than compliance'; mental models are deeply held internal images of how the world works; team learning puts emphasis on the learning activities of the group rather than on the development of team process; and eventually system thinking is defined as the ability to see interrelationships rather than linear cause-effect chains [25].

Difference Area	**Traditional Organization**	**Learning Organization**
Attitude and Expression Style	Obedience, Drawbacks in expressing hesitations	Critical, Questioning. Comfort in expression
Learning Right	Owners, managers and employees	Owners, managers and employees as well as the elements of the external environment (customer, environment, public institutions, etc.)
Motivation	Food, housing, belongingness	Respect in addition to basic needs. Vision and achievement.
Thought	Thinking and Doing Groups	Participation of everyone in thinking process
Change	Reactive, Indexed to competitors and external environment	Activist and progressive. Conscious to take into account the whole of internal and external factors.

Table 1.0: Comparison of Traditional Organizations and Learning Organizations
Source: Coskun (2000:109-116)

[12] states that a Learning Organization can create, acquire, transfer knowledge and modify its behavior as a form of new knowledge and insights. Very similarly [14] address it as an organization that facilitates the learning of all members and continuously transforms itself to cope with its strategic goals". [22]- [23] as well defined the Learning Organization as "one that learns continuously and transforms itself… Learning is a continuous, strategically used process - integrated with and running parallel to work". In a Learning Organization, learning and work are integrated in an on-going and systematic fashion - aiming to support continuous improvement at the individual, group and organizational levels [23].

[22] introduced a more integrative model of the Learning Organization which integrates two main organizational constituents: people and structure and viewed these two constituents as interactive components of organizational change and development. Learning organizations create intentional processes that accelerate the creation and utilization of knowledge across the system [24].

Organizational Performance

Organizational performance can be defined as the actual results/outputs of an organization compared to the intended results/outputs/objectives. Various scholar define performance in various ways. According to [16], performance is considered to be the effort employees show to be received as payment.

[13] claims that performance may have different meanings depending on the operator's point of view, however it is primarily a matter of interest to decision-makers; it is a process for the proper management of all elements involved, ensuring that the objectives set in a firm are fully achieved. [15] views performance in a broader perspective when in addition to effectiveness and efficiency includes also quality, productivity, quality of work life, innovation and profitability as indicators of performance. Organizational performance can be defined as the ability of organizations to reach their intended goals through an effective and efficient use of their resources [1]. Organizational performance is a continuous and flexible process that provides a framework for managers about how to best achieve the necessary results altogether [5].

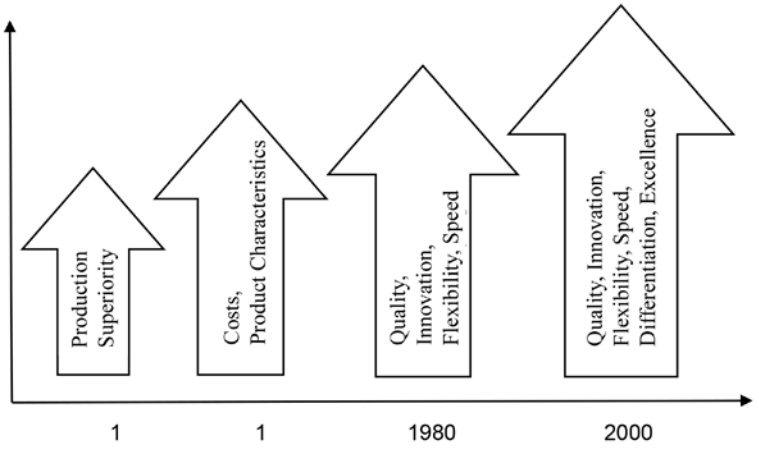

Fig.1.0 The development of competition in the last half century [8]

As seen in figure 1.0 above, the concept of competition has changed a lot in the past 50 years and in accordance to these developments performance expectations and performance dimensions have been shaped too. Throughout this time, there has been an increasing intense battle to ensure a competitive advantage among firms and in order to ensure this competitive advantage, some global trends have changed the dimensions of how performance is measured. Some of these trends are; globalization, customer focus, process focus and high efficiency. Nowadays, while evaluating their performance, business firms make their evaluations by prioritizing such concepts.

In organizations which operate as organizational systems, proper defining the dimensions of performance in order to measure it is very important in terms of determining what needs to be measured and with what kind of indicators it can be done. As discussed above the understanding of performance in organizations has gone through continuous change and development over time. With such developments, some dimensions have lost their importance and some others have gained importance, thus relevant performance indicators that reflect these situations are highlighted.
In this context, during the industrial revolution these dimensions were exhibited in the form of profit and cost; later on they turned into the profit, cost and efficiency triangle; then customer satisfaction and quality were eventually added; and most recently, several dimensions related to marketing activities such as employee behavior, market situation, product leadership and social responsibility have been added to this classification [1].

[18] have conducted one of the basic studies that discusses the dimensions of organizational performance in the classical approach; they discuss the dimensions of organizational performance through performance criteria such as efficiency and effectiveness, quality, productivity, quality of working life, innovation and profitability and compliance with the budget. [2]-[3] and many other authors emphasize that the dimensions of organizational performance are basically divided into 'economic' and 'organizational' dimensions and that other approaches are derived from them within the framework of organizational strategy. The economic dimension emphasizes the external market factors such as the firm's competitive position; meanwhile the organizational dimension emphasizes behavioral and social aspects and their harmony with the environment.

3. CONCEPTUAL FRAMEWORK

[6] describes theory as an expression of the empirical inter-unit relations observed or perceived in the world. The learning organization model used in this study was adapted from the model developed by [22]-[23]. This model integrates two basic components; the individual and the structure. [22]-[23] describe the seven dimensions of the learning organization organized into three levels; the individual, team and organizational levels. This model implies that members of an organization learn first at the individual level; then, as they join together to work within the organization, they learn in teams, and finally larger units or organization. From this model [24] constructed and validated a scale that measures the learning organization framework at organizations, the Dimensions of the Learning Organization Questionnaire (DLOQ), which is the scale used in this study as well.

In the relevant literature, several authors have concluded that organizational learning as a process positively affects organizational performance. [11] revealed that there is a positive relationship between the concept of learning organization and the financial performance of a firm. According to [20], learning organizations are capable of identifying and developing strategies for customers and competitors, eventually increasing profitability. A relationship between the profit-sales margin and learning organizations can be demonstrated; if a company is capable of learning what its customers want and what they want, this company can achieve high customer satisfaction, and this should increase its profit-sales margin [19]. [7] too, argued that the relationship between learning organizations and organizational performance could be addressed in terms of employee satisfaction and organizational commitment.

By taking into consideration the two variables discussed above, the research model proposed for this study is as follows in figure 2.0.

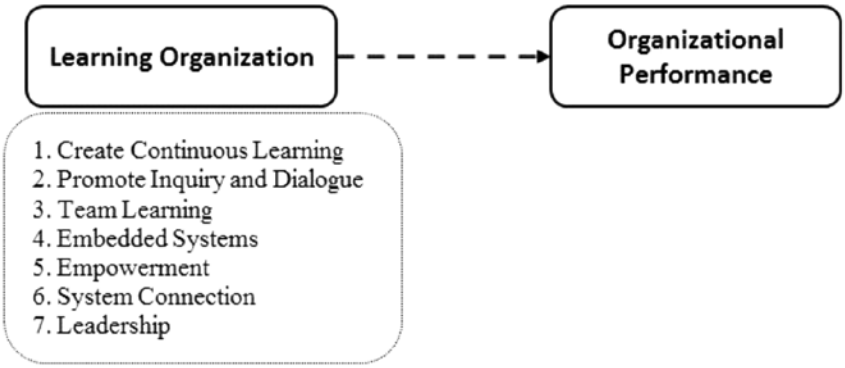

Fig.2.0. The proposed model for this study

In this study, organizational performance is considered as the dependent variable, and the seven dimensions of the learning organization framework make up the independent variable. Within the framework of this study, we tried to ensure that the following research questions were answered:

- *What impact does learning organization understanding have on organizational performance?*
- *Which learning organization dimension explains the perceived organizational performance the most?*
- *Is there any difference based on the various categories of participants regarding the perception of the learning organization understanding?*

To analyze the relationship which makes up the research question of this study, we have established the following hypothesis:

H1: The Learning Organization understanding has a positive impact on Organizational Performance.

4. METHODOLOGY

This study can be classified as experimental quantitative case study. Case study is a research strategy and focuses on perceiving existing dynamics in a certain order [10]. The survey method was used in this study as the basic data collection tool; and this survey named as Learning Organization Questionnaire was introduced by [22]-[23]-[24]-[25]. The learning organization is discussed at the individual, team and organizational level. The questionnaire adapted to this study consisted of 21 Likert scale questions about the learning organization ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Meanwhile, 10 Likert scale questions in the questionnaire were used to measure organizational performance. In addition, 5 questions tried to gather demographic factors.

The research sample of this study consisted of the headquarters' personnel of various authority levels of two major textile companies in a metropolitan city considered as the commercial center of an emerging country. The survey was conducted on-hand and online for practicality of data collection. Due to ethical requirements, participants were informed about what the questionnaire was about. Non-random sampling technique was used to generalize the findings.

Results were analyzed and interpreted in accordance with the research questions. Among the analyzes, there is descriptive analysis used to observe the average responses of the participants. Cronbach alpha reliability test was conducted for each of the factors in the study. Then, averages, standard deviations, Pearson correlation test etc. was applied to each of the variables. Linear regression was used to test the research question.

5. FINDINGS

In this study, out of 150 distributed surveys we were able to collect 108 surveys, which counts for 72% of feedback. After the data collection phase was completed and surveys collected, surveys were checked and generally, most of the questionnaire forms have been fully completed; only 3 surveys were removed due to improper completion. Questionnaire data was converted into an Excel file and transferred into SPSS 20.0 program to be further analyzed.

Demographics

The Demographic distribution of the 105 participants is as follows; 74 were male and 31 were female. As it relates the age ranges of the participants it changed from 17 participants belonging to the 18-24 years range, 63 participants belonging to the 25-34 years range, 20 participants belonging to the 35-44 and 5 participants belonging to the 45-54 years range. The majority of participants has an education level of Bachelor's Degree (71 participants), 9 of them have High School diploma, 10 of them have Vocational School diploma, 12 have a Master's degree and 3 have a Doctoral Level education background. In addition, 25 of the participants have less than 1 year of experience in the current firm, 62 of them have 1 to 5 years of experience and 18 participants have more than 5 years of experience in the current firm.

Descriptive and Reliability Analysis

As a result of the exploratory factor analysis we performed with 31 expressions for both scales, Kaiser-Meyer-Olkin (KMO) value was found to be 0.845, which shows us that our sample size is adequate. The Barlett sphericity test result (0.000) is significant and the variables have a normal distribution. As a result, it is seen that the suitability of the variables to factor analysis is excellent. However, we grouped the variables on the basis of previous studies and 4 factors for the learning organization; individual learning, group learning, organizational learning, leadership learning, meanwhile organizational performance was grouped into 1 factor.

Cronbach's alpha is the most common tool used to measure internal consistency or reliability. Cronbach's alpha is used to measure whether a survey consisting of Likert questions is reliable or not. Reliability analysis was conducted separately for each dimension of the learning organization and organizational performance. According to the relevant literature, if the Cronbach's alpha coefficient is between 0.60 and 0.80, the scale is considered to be reliable, if it is between 0.80 and 1.00 this scale is considered to be a highly reliable scale. According to our results, as seen in table 2.0 below, Cronbach's alpha coefficient is 0.935 for the learning organization and 0.908 for organizational performance. This shows that the scale we use is very reliable.

Variables	**N**	**Mean**	**Std. Deviat.**	**Cronbach's Alpha**	**N.of Items**
1. Learning Organization	105	3.48	0.633	**0.935**	21
2. Organizational Performance	105	3,65	0.734	**0.908**	10

Table 2.0. *Means, Standard Deviations, Cronbach's Alpha coefficients for Learning Organization dimensions and Organizational Performance*

Linear Regression

The main purpose of this study is to determine the impact that learning organization dimensions have on perceived organizational performance. For this purpose, we have tested our hypothesis by performing linear regression analysis. The Linear regression equation is in the form ($Y\ i = \alpha + \beta\ x\ i + \varepsilon$) or ($y= a + bx + e$).

The model summary results show that more than 50% of the variance or change in Organizational Performance dependent variable is explained by the dimensions of the learning organ-

ization independent variable. The rest of the variance is explained by factors not part of this research including the error term. At the same time, the value of F in the ANOVA table is significant (.000), so the validity of our model is strongly supported.

The following table 3.0 shows the coefficients and t values of our model. As it can be seen, the learning organization variable in our model is significant at 5% significance level. The constant term of the model was found to be 0.778.

Model	B	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		Std. Error	Beta			
1	(Constant)	**,778**	,349		2,231	**,029**
	learning organization	**,825**	,099	,712	8,366	**,000**

a. Dependent Variable: organizational performance

Table 3.0. Coefficients

According to the coefficients found in the table above, the linear regression equation for our model is $y = 0.778 + 0.825x$, which means that if the Learning Organization variable is increased by one unit, there will be an increase in the organizational performance by 0.825 units. As a result, our hypothesis ***H1*** has been **accepted** and it has been concluded that learning organization structure will have a positive effect on organizational performance of a firm.

5. CONCLUSION

The findings of this study indicate that the learning organization framework or understanding has a positive impact on the overall organizational performance of firms in the textile sector. The overall findings of this research are to a great extent in conformity with previous research results that learning organizations through continuous learning and implementing of what they have learned will increase their organizational performance. Factor analysis, correlation and regression methods were used to test the hypothesis we established to achieve this result.

It can be noticed that firms, starting from the late 20th century and beginnings of the 21st century onwards, have started to give a lot of importance to information acquisition and learning processes on the path to gaining competitive advantage. Proper management and exploitation of this information lies in the use of appropriate institutional systems, and with such appropriate institutional systems business firms will be transformed into learning organizations.

As a conclusion, a great deal of responsibility fall to managers to embed the learning culture in the organization, and in order to reach out to new knowledge and properly use the existing knowledge in the path of gaining a competitive advantage in an ever changing environment, instilling the awareness of learning at the individual, team and organizational levels in the organization is one of the most important tasks of managers.

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MIGRATION AND MOBILITY OF QUALIFIED MILLENNIALS

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Abstract: *Currently, many companies face the problem of a lack of workers, including the most highly qualified ones. Employers are very interested in whether today's young people are willing to commute or even move because of work. The purpose of this research was to answer these questions. The research group consisted of 1082 students of Jan Evangelista Purkyně University in Ústí nad Labem (Czech Republic). Students from all faculties, i.e. Faculty of Social and Economic Studies, Faculty of Mechanical Engineering, Faculty of Science, Faculty of Arts, Faculty of Education, Faculty of Health Studies, Faculty of Art and Design and Faculty of Environment, were involved. A written questionnaire was chosen as the method. The data was collected and processed using STATISTICA software. The statistical methods of the Mann-Whitney U Test, Kruskal-Wallis test, and the comparison of the parameters of two binomial distributions were used to evaluate the questions. The results indicate that the respondents from individual faculties show a similar willingness to commute to a job or, more precisely, to the amount of time they are willing to spend on the way. Differences, however, are in the willingness to move, both within the country and abroad. In this aspect, the students of the Faculty of Art and Design show the greatest willingness to move. The comparison of the students' attitudes by gender shows very interesting results. Women are statistically less willing to commute to work as well as to move within the country or abroad than men. Their un/willingness to move might be motivated by the fact that they plan to have children. Thus, the students were asked whether they plan to have children within 3 to 5 years after finishing their studies and their willingness to commute or move was evaluated taking this aspect into consideration. The students that are planning to start a family are less willing to commute to work for longer than 1 hour or to move within the country or abroad. Statistically significant differences were also found within gender. Women who are planning to have children prefer to work only in the place of residence and are unwilling to move (within the country or abroad). Men who are planning to have children show a more negative attitude towards moving abroad unlike those that are not planning to have children. It is also interesting that there are differences in students' plans to have children depending on the type of faculty they are studying. Most often, the students that plan to have children in less than 5 years after graduation are from the Faculty of Health Studies, of Arts and of Education. On the other hand, the smallest number of students that are planning to have children study at the Faculty of Mechanical Engineering and of Science. This result of the research is influenced by the ratio of registered men and women in each faculty. Women are planning to have children more often than men.*

Keywords: *Labour mobility, labour migration, willingness to commute for work, gender differences.*

1. INTRODUCTION

Many European countries have been experiencing a period of economic prosperity. In the labour market, demand for workforce predominates over its supply. Businesses report a lack of workforce and seek both low- and highly-qualified workers [1]. Due to ageing populations, the number of workers in working age has been gradually decreasing. A further decrease in workforce is driven by brain drain, i.e., the temporary or permanent outflow of workforce from their home country. The aspects of labour migration and the ageing popu-

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lation index have thus become a societal phenomenon [2]. Businesses may attract employees partially by offering conditions enabling the employment of more women or older people [3]. Graduates also form a potential source of new workforce. To allow employers to approach them effectively, they need to know whether young people are willing to commute for work (mobility) or even move to get a job (migration). Many studies show that low unemployment and high qualifications are typical factors decreasing the willingness to commute for work [4]. People with high qualifications realize the value of time and their willingness to accept a job offer with a longer commuting time depends on the size of the offered salary [5]. Along with limited willingness towards labour mobility, labour migration also features certain drawbacks. It may represent a potential source but also a loss of workforce. While predicting labour migration, it is important to continuously compare labour markets, especially those threatened by a potential brain drain [6]. Apart from macroeconomic trends, it is also vital to pay attention to current attitudes of the young generation, denoted as Generation Y or millennials.

2. METODOLOGY

The aim of this survey was to establish the willingness of young people towards labour mobility and labour migration. The research population comprised 1082 students from Jan Evangelista Purkyně University in Ústí nad Labem (Czech Republic). The survey comprised students from all the faculties, i.e., the Faculty of Social and Economic Studies, the Faculty of Mechanical Engineering, the Faculty of Science, the Faculty of Arts, the Faculty of Education, the Faculty of Health Studies, the Faculty of Art and Design and the Faculty of the Environment. The research was conducted using the written questionnaire method. Data were acquired and processed using MS EXCEL and STATISTICA software. The question assessment was performed using the Mann–Whitney U Test, Kruskal-Wallis test and comparing parameter matching of two binomial distributions. It was investigated whether there are statistically significant differences in the willingness to commute for work (mobility) or move (migration) between students of individual faculties.

3. RESULTS

To establish the level of willingness towards labour mobility and migration, respondents were asked the question listed in Table 1. For reasons of clarity, the questions are labelled A to G.

Label	Question
A	I want to work only where I am domiciled
B	Commute up to 30 minutes
C	Commute up to 60 minutes
D	Commute for more than 1 hour
E	I am willing to move within the Czech Republic
F	I am willing to move abroad on a temporary basis
G	I am willing to move abroad on a permanent basis

Table 1: The wording and labels to establish information about mobility and migration

First, the aforementioned questions were assessed using a descriptive method. Table 2 shows that 92% of students declare a willingness to commute for work for up to 30 minutes at a maximum.

	A	B	C	D	E	F	G
relative frequency	0.70332	0.92421	0.52587	0.11922	0.56561	0.50184	0.30683

Table 2: Relative frequencies of answers to questions A to G

Willingness towards labour migration (moving) within the Czech Republic is expressed by 56% of respondents while willingness to move abroad permanently is lower (30%).

H1: As far as willingness to commute for work (mobility) and move (migration), there are no statistically significant differences between students of individual faculties.

As the data did not show normal distribution, non-parametric tests were used. In this case, it was the Kruskal-Wallis test. The results of the test are given in Table 3.

Question	p-value	Pair comparison
A	0.8719	
B	0.6252	
C	0.0100	Faculty of Science x Faculty of Health Studies, p=0,027027
D	0.3823	
E	0.0077	Faculty of Social and Economic Studies x Faculty of Art and Design, p = 0,025782
F	0.0000	Faculty of Art and Design x other faculties except for Faculty of the Environment
G	0.0000	Faculty of Art and Design x other faculties except for Faculty of the Environment

Table 3: Attitudes of students from individual faculties to mobility and migration

The results show that in respect of labour mobility, university students declare a similar level of willingness to commute for work, regardless of their faculties. As far as labour migration is concerned (moving for work), the attitudes of the Faculty of Art and Design students differ.
Another subject of the survey was to establish whether there are gender differences in respect of labour mobility and labour migration and the following hypothesis was made:

H2: There are significant gender differences in the willingness towards labour mobility (to commute for work) and labour migration (to move within the country or abroad).

	Rank Sum female	Rank Sum male	U	Z	p-value	Z adjusted	p-value
A	396469.5	189433.5	128008.5	0.018925	0.984901	0.020369	0.983749
B	396891.0	189012.0	127587.0	0.106581	0.915121	0.125413	0.900197
C	412510.0	173393.0	111968.0	**3.354761**	**0.000794**	**3.588322**	**0.000333**
D	412719.5	173183.5	111758.5	**3.398329**	**0.000678**	**3.734137**	**0.000188**
E	408300.0	177603.0	116178.0	**2.479235**	**0.013167**	**2.618884**	**0.008822**
F	414026.5	171876.5	110451.5	**3.670137**	**0.000242**	**3.846066**	**0.000120**
G	417897.0	168006.0	106581.0	**4.475060**	**0.000008**	**4.697227**	**0.000003**

Table 4: Gender differences in attitudes of students to mobility and migration.

These differences were verified using the Mann–Whitney test. The results of the test are given in Table 4. Table 4 shows which attitudes to mobility differ according to gender. Table 5 shows the average values of the coded answers. The higher the value of the code, the greater the disagreement. Based on the Mann–Whitney test, it can be stated that hypothesis 2 has been partially confirmed: men tend to show more willingness to commute longer distances and more willingness to migrate.

sex	A	B	C	D	E	F	G
female	2.159836	1.795082	2.538251	3.353825	2.457650	2.616120	3.032787
male	2.165714	1.805714	2.354286	3.174286	2.300000	2.382857	2.734286

Table 5: average values of coded answers on mobility and migration

The third hypothesis verified whether:

H3: Variables having the biggest impact on mobility and migration are not only gender but also the fact whether they want to have children.

The difference in attitudes of these two groups (I am planning to have/not to have children upon completing my studies) was verified using the Mann-Whitney test. The results of the test are given in Table 6.

	Rank Sum 1*	Rank Sum 2**	U	Based on	p-value	Z adjusted	p-value
A	306714.5	279188.5	136478.5	-1.75244	0.079699	-1.88623	0.059265
B	318274.5	267628.5	142878.5	0.50342	0.614672	0.59237	0.553606
C	314351.5	271551.5	144115.5	-0.26200	0.793319	-0.28024	0.779291
D	324946.0	260957.0	136207.0	1.80543	0.071008	**1.98383**	**0.047275**
E	334348.5	251554.5	126804.5	**3.64043**	**0.000272**	**3.84548**	**0.000120**
F	345424.5	240478.5	115728.5	**5.80202**	**0.000000**	**6.08014**	**0.000000**
G	350254.0	235649.0	110899.0	**6.74455**	**0.000000**	**7.07939**	**0.000000**

1* I want to have children, 2** I don't want to have children

Table 6: Differences in willingness towards labour mobility or labour migration of students who are planning to have or not have children

It clearly follows from table 6 that the attitudes of the group planning to have children and of the group not planning to have children differs from question D (commuting for more than an hour) and with all questions concerning migration. It follows from Table 7 that the averages of the coded answers to questions E, F and G are higher in those who want to have children and they do not show a willingness towards labour migration.

	A	B	C	D	E	F	G
1*	2.22044	1.78957	2.48096	3.24248	2.29258	2.35470	2.70941
2**	1.95883	2.14150	2.90909	2.92281	2.60205	2.91509	3.1303

1* they don't want to have children, 2** they want to have children

Table 7: Average values of coded answers on mobility and migration

The same process was used to test whether there are differences between women planning to have children and women not planning to have children Women planning to have children prefer to work where they are domiciled and show a significantly lower willingness towards labour migration. For men planning to have children, their willingness towards mobility does not differ from men not planning to have children. However, men planning to have children are less willing to move abroad, either temporarily or permanently.

Finally, the survey looked into whether there are statistically significant gender differences in planning to have children. The last hypothesis was stated as:
H4 Female students plan to have children more often than male students.
Table 8 indicates the number of men and women who are planning to have children within 3 to 5 years of completion of their university studies.

	Rank Sum 1*	Rank Sum 2**	U	Based on	p-value	Z adjusted	p-value
A	34316.50	27108.50	15018.50	0.09944	0.920788	0.10467	0.916639
B	33505.00	27920.00	14395.00	-0.76256	0.445727	-0.87330	0.382499
C	34120.00	27305.00	15010.00	-0.10848	0.913614	-0.11698	0.906877
D	33860.00	27565.00	14750.00	-0.38500	0.700237	-0.41850	0.675583
E	32581.00	28844.00	13471.00	-1.74527	0.080939	-1.85555	0.063518
F	32204.50	29220.50	13094.50	**-2.14569**	**0.031898**	**-2.27215**	**0.023078**
G	31692.50	29732.50	12582.50	**-2.69022**	**0.007141**	**-2.79792**	**0.005144**

1** not to have children, 2** to have children

Table 8: The absolute frequency of men and women who are planning to have children within 3 to 5 years of completion of their university studies

Table 8 show that there are more women planning to have children upon completion of their studies (58%) than men (44%). A test consisting in comparing parameter matching of two binomial distributions verified that the proportion of men is statistically significantly low (p-value of 0.000).

Another analysis focusing on whether there are differences in planning to have children between individual faculties was done. The highest percentage of students planning to have children come from the Faculty of Health Studies (65%) and the lowest percentage from the Faculty of Art and Design (40%).

4. DISCUSION

Many employers expect that their future employees will be willing to commute to work or even move. Jun [7] notes that commuting or the length of commute leads to a loss of welfare. Quart et al. [8] carried out an extensive survey among German medical faculty students and found that most future physicians declare a willingness to commute up to 40 minutes at a maximum. Cassel [4] states that the factors influencing the willingness to commute are gender, level of education, and the presence of children in the household. Cassel's findings are in line with the conclusion of this study which established that not only gender but also planning to have children influences willingness towards labour mobility and migration. Beck and Hess [5] note that other important variables influencing willingness to commute for work are also the salary offer,

commuting by one's partner, options of commuting, etc. Very similar factors are also contemplated by other authors [9], [10], [11]. On the contrary, certain individual studies indicate that no difference between aversion to commuting in men and women was found [12].

Another important topic of this article was the issue of willingness to move abroad. It was found that the level of willingness to move depends not only on gender (women are less willing to move) but also on the type of faculty where the respondent studies. Similar conclusions, i.e., that strong predictors of moving abroad are the type of university and field of study, were also drawn by other authors [13]. Currently the highest level of willingness to migrate can be perceived in graduates in the medical and health fields of study. For example, Santric-Milicevic et al. [14] state that up to 70% of graduates from a university specialized in education of health professionals in Serbia want to move abroad. A similarly high number is seen in health professionals in many other countries [15], [16]. According to McKenzie at al. [17], most frequently, the reason for labour migration (not only in health professionals) is the expectation of a larger salary. Djajic, Kirdar and Vinogradova [18] calculate how the size of salary influences the decision on migration according to the level of qualifications. For university graduates, the reason for migration may also be an effort to avoid repayment of loans for university studies which are conditioned by attaining a certain income [19]. A reason why students move abroad may also be acquiring work experience which represents a form of capital improving their work opportunities after their return to their home country [20]. Based on the findings of some studies, it can be assumed that young people who decide to move abroad show certain personal characteristics [21], [22]. Herz et al. [23] think that interest in moving abroad is also influenced by increasing age where the willingness to migrate decreases, while it increases in students. The outflow of skilled workforce abroad may be beneficial for the economies of individual countries only if it concerns temporary labour migration [24], [25], [26], [27].

5. CONCLUSION

The aim of this study was to establish the level of willingness of university students towards labour mobility (commuting for work) and migration (moving for work) and by which variables the mobility and migration are influenced. The research population comprised 1082 university students of various fields of study. It was found that in students of individual faculties there is no significant difference in the willingness to commute for work, whereas the most preferred maximum commute time is 30 minutes. As far as labour migration is concerned (moving for work), the attitudes of the Faculty of Art and Design students differ. Some gender differences were also established. Compared to women, men show more willingness to commute longer distances and also more willingness towards labour migration (moving for work).

Planned parenthood is a significant variable influencing migration. Students who want to have children show a significantly lower willingness towards labour migration. From the point of view of statistical significance, female students plan to have children more often than male students. Differences in planning to have children differ significantly not only with gender but also with the field of study.

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INFORMATION AND COMMUNICATION TECHNOLOGY AND THEIR INFLUENCE ON BUSINESSES GROWTH IN SLOVAKIA

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Abstract: *Progress in information and communication technology (ICT) has caused many structural changes such as reorganizing of globalization, economics or trade extension. Personal computers and the Internet provide the equipment and connectivity that allows companies to benefit from ICTs. The impact of ICT on business efficiency is the subject of many studies and statistical surveys. Some studies demonstrate a clear return on investment in ICT. Other surveys show the benefits of ICT, but there are no specificities, that lead to ICT efficiency maximization.*

Information and communication technology is a broad area, so we will focus mainly on the use of computers and computer networks, the use of the Internet and the promotion through the web site, which are partial parts of our survey. The survey focused on the agriculture section, because other economic activities are mapped relatively well by official statistical surveys.

The findings of the research indicate progress in the use of computers and computer networks over a similar survey realized in 2009. It is also possible to claim this in the case of website promotion. However, it is still possible to conclude that agriculture is lagging behind in comparison with other economic activities.

Keywords: *ICT, computer networks, Internet, agriculture*

1. INTRODUCTION

Information and communications technology (ICT) refers to all the technology used to handle telecommunications, intelligent building management systems, broadcast media, audio-visual processing and transmission systems, and network-based control and monitoring functions [4]. ICT in its various forms is being used by businesses for a wide range of purposes. These purposes include maintaining effective level of communication among the workforce, sending marketing communication messages to current and potential customers, measuring the level of customer satisfaction, making sales, engaging in team building initiatives, increasing the level of employee morale etc. [1].

The deployment of information systems and information technology has become a prerequisite for the success of companies in all areas of economic activity today [3]. The information available from corporate data enables managers and employees to make decisions quickly and accurately so that they can manage operations effectively and respond rapidly to business opportunities or threats. ICT solutions can help organizations reduce costs, increase revenue and improve profitability. Cost reductions and revenue gains make an important contribution to

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overall profitability [7]. According [2] personal computers and the Internet provide the equipment and connectivity that allow individuals, households and companies to benefit from ICTs. The ability to access information quickly and easily is a major benefit for businesses. The Internet has just about every fact and piece of information immediately available that a business could need [5]. Information and knowledge have gradually become the necessary business resources that influence business management [8]. The impact of ICT on economic growth and development can be examined from the demand and supply aspect. ICT results in increased demand for new products and services and on the supply side, the growth of ICT and its skills results in the increased efficiency of production factors in economic activities [7]. Progress in ICT has caused many structural changes such as reorganizing of globalization, economics or trade extension. According some surveys, ICT plays a significant role in development of each economic sector. Personal computers and the Internet provide the equipment and connectivity that allow individuals, households and companies to benefit from ICTs.

2. DATA AND METHODOLOGY

Data for analysis was obtained from a questionnaire survey. This survey is part of project research which includes nine parts – using of computers and computer networks, using of company website and promotion through the website, using of information management tools, information about e-business, cloud computing and RFID technology, information about expenses and profits from ICT and using of social media. The survey focused on the agriculture section, because other economic activities are mapped relatively well by official statistical surveys. For this paper we selected data about use of computers and computers networks, the use of the Internet and the promotion through the website.

The reliability of the items was analyzed using multidimensional survey techniques to judge the quality/reliability of the measurement procedure (e.g. the questionnaire scale) and to identify suspicious questionnaire items. One of the ways to directly estimate reliability is the Cronbach's Alpha Coefficient

$$\hat{\alpha} = \frac{m}{m-1} \cdot \left(1 - \frac{\sum s_j^2}{s^2}\right) \tag{1}$$

where m is the number of items in the questionnaire, s^2 is the questionnaire scale variance, and s_j^2 is the variance of the j item in the questionnaire.

Basic statistical methods were used for the evaluation as well as the Chi-Square test of Independence. The Chi-Square test of Independence is used to determine if there is a significant relationship between the two nominal (categorical) variables. We are interested in examining if the two categorical variables are related or associated (i.e. dependent). First, we have to calculate the expected value of the two nominal variables. After calculating the expected value, we can apply the following formula to calculate the value of the Chi-Square test of Independence:

$$\chi^2 = \sum_{i=1}^{y} \sum_{j=1}^{c} \frac{(O_{ij} - E_{ij})^2}{E_{ij}} \tag{2}$$

where

χ^2 = Chi-Square test of Independence

O_{ij} = observed value of two nominal variables
E_{ij} = expected value of two nominal variables

Hypotheses for testing are:
H_0: In the population, the two categorical variables are independent.
H_1: In the population, two categorical variables are dependent.

In our survey, we set out the following hypotheses regarding Internet connectivity and the use of company own website:

Hypothesis 1: The use of the Internet connection is not dependent on the agricultural category.
Hypothesis 2: The use of business's own website is not dependent on the agricultural category.

The questionnaire was sent to 1185 companies from the agriculture area. The questionnaire return was 51,3%. Article presents some selected results of the project survey.

3. RESULTS AND DISCUSSION

Computers and their applications changed the face of most traditional occupations including agriculture. From computerized milk collection and seed estimators to weather predictions and automated farmland assessment, computers have revolutionized farming practices. Computers are used for record-keeping of information related to costs involved in production, transport, agricultural processes, and in the estimation and calculation of profit and/or loss. According to our survey results almost 98% of all companies used computers.

There is a huge potential, and the need to induct new and innovative technologies involving computers and related fields in the entire agriculture value chain from production to food on the table: enhance production efficiency; improve inputs use; conserve the resource base, reduce its pollution and carbon footprint in production, processing, storage, packaging and transport, retail distribution, and consumption; reduce food wastage in all forms; make it resilient to climate change (climate-smart agriculture), and enhance its ecological services. These different factors are all interconnected and interact in a highly complex manner. This is where computers and related software programs come into play to make agriculture highly efficient and productive, profitable, resilient to climate and sustainable over long-term.

Today it could be argued that having a reliable Internet connection in the world of business is just as important as having electric to run your computers and phones. The majority of businesses rely heavily on their Internet connections in order to carry out their day to day tasks and vital communications. In our survey, the companies were included into six categories of agriculture production. These categories are:

- agricultural mechanics,
- agricultural cooperative,
- services for agriculture,
- crop production,
- livestock production – breeding, services,
- livestock production – equipment, devices.

Generally, 74% of all companies has Internet connection, but according to the categories, the highest number of companies with Internet connection is in category of crop production and the lowest number of companies with Internet connection is in category of agricultural cooperative. According to our survey, the problematic category is agricultural cooperative, where 47% of all cooperatives are not connected to the Internet. Complete situation is shown on figure 1.

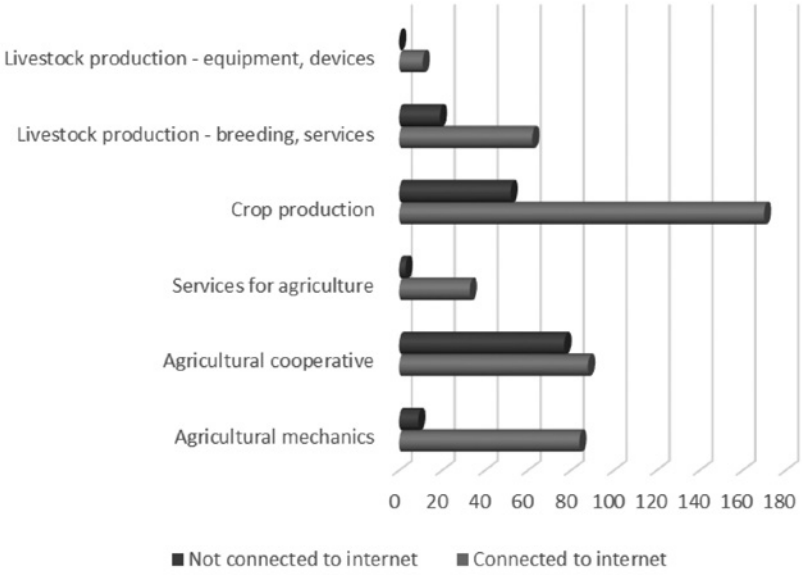

Figure 1: Connection to the Internet according categories of agriculture

Most consumers are looking online for information that will help them make smarter purchasing decisions. If a company don't have a website, it is losing out a great opportunity for business. A website is more environmentally friendly when it comes to advertising and marketing. There are lots of ways to advertise company products or services through the Internet. Our survey shows that agriculture companies don't appreciate the importance of the promotion through their own website. Only 42% of all companies has their own website. The worst situation is in category of crop production and agricultural cooperatives. There is 39% of companies in crop production category and 37% companies of agricultural cooperatives which do not have their own website. Complete situation is shown on figure 2.

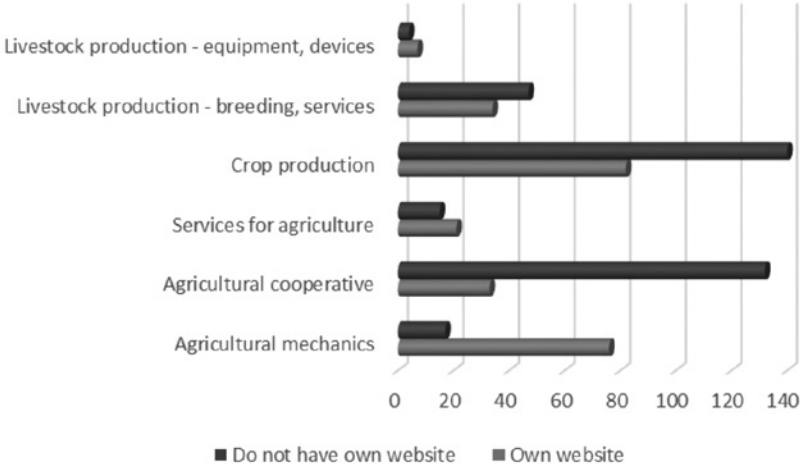

Figure 2: Agriculture companies and their promotion through the website

Regarding the use of the Internet and own companies' websites were within our research set the research hypotheses. The hypotheses were tested by the Chi-square test of independence. First hypothesis was that the use of the Internet connection is not dependent on the agricultural category. Second hypothesis was that the use of business's own website is not dependent on the agricultural category. Since the calculated test characteristics of the chi-square test is greater than the tabulated value in both hypotheses can be observed as a significant association between the use of the Internet connection, own company website and agricultural category of companies. This means that we reject the null hypothesis and accept the alternative hypothesis in both cases. Result is in table 1.

Statistics	**Categories of agriculture production**	
	Internet connection	**Company website**
Chi-Square	**11,2069**	**5,289**
Table value	2,99146	1,578

Table 1: Result of testing both hypotheses

4. CONCLUSION

Computers and their applications changed the face of most traditional occupations including agriculture. Computers are used for record-keeping of information related to costs involved in production, transport, agricultural processes, and in the estimation and calculation of profit and/or loss. The importance of using computers and the Internet is also confirmed by the results of our research. As we mentioned above, almost 98% of all companies used computers. Internet generally brings new information resources and can open up new communication channels for rural communities and agricultural organizations. According to our survey 74% of all companies have Internet connection. It should be noted that today, when the majority of the population is using the Internet, this percent should be much higher. The Internet provides great opportunities to promote the business. If the business wants to become more prominent on the market, it should have its own website promoting its products and services. Our survey shows that only 42% of all companies have their own website. A website itself can be used to accomplish many marketing strategies to help businesses growth. It is important to increase the number of companies with own website. ICT has a significant and ever-growing influence on the economy and employment therefore should be among the priorities of all companies to increase the ICT using.

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SUSTAINABLE ACCOMMODATION FACILITIES IN BULGARIA – REAL FACT OR NOT?

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Abstract: *Accommodation facilities are key tourism actors and therefore cause considerable impacts. Stakeholders get involved in various voluntary programs, where they seek appropriate measures by which to contribute to improving the environment at the local and national level. A lot of accommodation facilities are turning green at an increasing rate due to a single reason, which is not directly based on profitability, longevity, or sustainability. The green trend has come into the life of the hotel business and is enthusiastically accepted by a vast majority of guests, especially in western countries. On the other hand, accommodation facilities are trying to be environmentally friendly, but the economy is becoming more and more important to them. This paper deals with applying elements of green management in accommodation facilities in the city of Sofia, Bulgaria. It analyses the implementation of green management elements and the principles of sustainable development in accommodation services. It focuses on accommodation facilities and their use, and environmental measures. The primary survey was conducted from May until June 2018, and we used a questionnaire survey to obtain primary data. We used the methods of scientific work; and, i.e., the analysis method, a generalization method, mathematical, and statistical methods. A total of 247 accommodation facilities participated in this research, and they reached the best results with sorting containers, dual flush toilets, compact fluorescent lamps, and LED lamps. We state that the surveyed accommodation facilities should invest more funds in green initiatives and acquaint employees and guests with this philosophy. Anyway, in a few years, it is certain that environmental protection will become a legal obligation for accommodation facilities. In our opinion, be proactive already now and start from this moment on. It is time for the hotel industry to accept its environmental responsibilities to reduce the environmental impact of international tourism.*

Keywords: *Eco-friendly accommodation facility, environmental measures, green management, hotel industry, services.*

1. INTRODUCTION

Tourism is a sector of considerable economic importance and its new ways of development are still emerging [1]. [2] reports that trends in tourism, especially in the hospitality and accommodation market are continually evolving. Managers are finding new ways to harmonize the proposed higher standard with a focus on environmental measures. Environmental practices and innovations of hotel business are a widely discussed topic in scientific literature nowadays due to the benefits they bring to organizations, notably increasing revenues and reducing costs [3]. Green or organic products/services have achieved enormous relevant results in response to the escalated consumer sensitivity to concerns over the ever-worsening environment [4].

Generally, tourism and especially accommodation facilities are responsible for waste pollution, increased water and energy consumption in destination areas, creating many (low paid) jobs for residents, consumption of products and materials produced by the local community [5]. [6] argue that 75% of all environmental impacts are created by the hotel industry. This value can be attributed to excessive consumption of local and imported perishable goods, and the waste

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of energy and water. The literature repetitively argues that to facilitate sustainability, accommodation facilities need to adopt a new environment and socially friendly principles, attitudes and behaviors [7].

On the other hand, the laws or regulations of most countries do not have a legal or a universally accepted definition of what is a „green accommodation facility or eco-friendly hotel." It means that the practice of using „green or eco-friendly" as a marketing ploy is still widespread in many cities and towns around the world. A lot of hotel managers are claiming that they are „green or environmentally friendly" by just hanging a sign and declaring themselves to be green [8].

ECONOMIC PERFORMANCE	ENVIRONMENTAL PERFORMANCE	SOCIAL PERFORMANCE
- hotel revenues - operating costs (implementation of ISO 14001, Eco-Management and Audit Scheme) - hotel profits (purchasing larger volumes and minimizing packaging and products that the hotel really needs, purchasing products from suppliers in the region, purchasing quality and truly useful products, purchasing of environmentally friendly products, and measuring guests´ satisfaction) - employee compensation - donations and other community investments - retained earnings - payments to capital providers and governments - proportion of spending on locally-based suppliers (purchase of raw materials and products in the region, support local infrastructure) - corporate philanthropy	- total direct and indirect greenhouse gas emissions - energy consumption by primary source (regulating heating and air conditioning, thermal insulation of buildings) - energy saved through conservation and efficiency improvements (low energy technologies, appliances min. class A (A +, A ++, A+++), compact fluorescent lamps) - initiatives to reduce energy consumption (utilization of geothermal energy and waste heat) - total water consumption (installation of single-lever mixers and faucet aerators, energy-saving shower heads, and two-stage flush toilets) - total water recycled and reused (grey-water reuse, rainwater harvesting) - waste output (waste separation in the background of hotels, sorting bins for plastic, paper, etc. in each room, reuse recycled materials, composting organic waste)	- incidents of discrimination - workforce by employment type - workflows and their control - promotion of environmental program to the public, - compliance with environmental principles by guests and employees (use of public transport and bicycles) - employee turnover rates (employment of local population) - workplace representation in health and safety committees - injury rates - employee training - programs for skills management and lifelong learning - percentage of employees receiving performance and career development reviews

INDICATORS BENEFITS	INDICATORS COSTS
- Monetary ↓energy costs ↓waste and water costs ↑revenues ↑profits ↑other operational savings - Non-monetary ↓greenhouse gas and pollutant emissions ↑biodiversity conservation ↑employee health and productivity	- Investments in environmental management initiatives - Investments in economic performance initiatives - Investments in social engagement initiatives - Investments in stakeholder reporting

Table 1: Hotel sustainability performance indicators [25]

A number of measures to protect the environment are focused on reducing energy [8], [9], [10], [11], [12], water [13], [14], [15], chemicals, office supplies, reduction of waste [16], [17], transport and mobility, smart technologies [12], increasing the proportion of natural materials, aesthetic environment, reducing noise and emissions (mainly carbon emissions), etc. [18], [19], [20], [21], [22], [3]. The best innovative practices are, e.g., linen napkins and terry washing towels, recovery of cutlery, converting old guestrooms bed linens into pot holders and aprons for the kitchen, using TVs for guests' information about recycling [23]. The international chain Marriott teamed up with their vendors to introduce greener solutions at no extra cost, e.g., eco-friendly pillows filled with materials made from recycled bottles, earth-friendly towels which do not need to be pre-washed, pens made of 75% recycled materials, low volatile organic compounds paint, which are safer and less polluting, Biodegradable laundry bags, laundry detergent that cuts the amount of phosphates released into wastewater [24].

Accommodation facilities tend to apply differently in the selection of saving measure. Some hotels and guest houses make decisions according to what is currently the most urgent; others focus on measures that will bring the most significant savings at the lowest cost [26].

2. DATA AND METHODS

This paper aims to analyze the application of environmental measures in selected accommodation facilities in Bulgaria focusing on the city of Sofia. We also set a research question: Which environmental measures are most used in the surveyed apartments?

There were used primary data collected by questionnaire survey and secondary data. The questionnaire survey consisted of twelve questions. They were mostly closed and some were half open questions. The questionnaires were in English and Bulgarian. At the end of the questionnaire, there were three segmentation questions and respondents had space for their views and comments. The primary survey was conducted in Sofia, Bulgaria. We used PAPI and CAWI methods. Paper and pencil interviewing (PAPI), data obtained from the interview is filled in on a paper form using a pencil [27]. Computer-assisted web interviewing (CAWI) is an Internet surveying technique in which the interviewee follows a script provided in a website. The questionnaires are made online for creating web interviews. The website can customize the flow of the questionnaire based on the answers provided, as well as information that is already known about the respondent. It is considered to be a cheaper way of surveying since one does not need to use respondents to hold surveys unlike computer-assisted telephone interviewing [28]. The survey was conducted from May until June 2018. In the city of Sofia, there are located over 620 apartments. We contacted almost 3/4 of them (435 apartments), especially their managers or owners; 57% of them answered willingly. We used the methods of scientific work; and, i.e., the analysis method (also Correspondence analysis - CA), a method of generalization, mathematical, and statistical methods. Using graphic tools of this CA, it is possible to describe an association of nominal or ordinal variables and to obtain a graphic representation of relationship in multidimensional space – for the readers; it is easier to understand. The analysis provides further evidence that dependencies exist between variables.

Correspondence analysis (CA) is a multivariate statistical technique. It is conceptually similar to principal component analysis but applies to categorical rather than continuous data. In a similar manner to principal component analysis, it provides a means of displaying or summarizing a set of data in a two-dimensional graphical form [29].

All data should be non-negative and on the same scale for CA to be applicable, and the method treats rows and columns equivalently. It is traditionally applied to contingency tables - CA decomposes the chi-squared statistic associated with this table into orthogonal factors. The distance among single points is defined as a chi-squared distance. The distance between i-th and i'-th row is given by the formula

$$D(i,i') = \sqrt{\sum_{j=1}^{c} \frac{\left(r_{ij} - r_{i'j}\right)^2}{c_j}} \quad (1)$$

where r_{ij} are the elements of row profiles matrix R and weights c_j are corresponding to the elements of column loadings vector cT, which is equal to mean column profile (centroid) of column profiles in multidimensional space. The distance between columns j and j' is defined similarly, weights are corresponding to the elements of the row loadings vector r and sum over all rows. In correspondence analysis we observe the relation among single categories of two categorical variables. Result of this analysis is the correspondence map introducing the axes of the reduced coordinates system, where single categories of both variables are displayed in graphic form. The aim of this analysis is to reduce the multidimensional space of row and column profiles and to save maximally original data information. Each row and column of correspondence table can be displayed in c-dimensional (r-dimensional respectively) space with coordinates equal to values of corresponding profiles. The row and column coordinates on each axis are scaled to have inertias equal to the principal inertia along that axis: these are the principal row and column coordinates [30].

3. RESULTS AND DISCUSSION

Sofia is the capital and largest city of Bulgaria. The city of Sofia is also the most visited tourist destination in Bulgaria besides coastal and mountain alternatives. Its area is 492 sq. km and is divided into 24 administrative districts, the most populous of which are Lyulin and Mladost. The population of the capital city numbers 1.33 million inhabitants, and it is almost one fifth (18.6%) of the population of Bulgaria. There were located almost 1,000 accommodation facilities; the most numerous groups were apartments (more than 620) and hotels (108). Based on their location, there is apparent concentration of accommodation facilities in the central part of the city as well in the southern peripheral districts [31].

Environmental measures were discussed with experts in ecology area and environmental sciences. These measures were selected on the basis of a pilot survey among 45 hotel managers or owners in Czechia. We had to keep only basic environmental measures because managers and owners were not interested in these hospitality trends and had only heard about some of the measures for the first time. We also carried out a pilot survey in Bulgaria, but we encountered a significant language barrier. The questionnaire was therefore translated by a native speaker from Czech into Bulgarian. The English version of the questionnaire was not filled in by managers or owners.

Almost every apartment had 5-20 rooms (90%), the rest of the apartments had 21-40 rooms (10%). Generally, the surveyed apartments had the best results with compact fluorescent lamps and LED lamps (67%). Most apartments have already installed the most economical LED lamps, but there is still a possibility for improvement. Since LED bulbs are up to 80% more economical and have a

much longer life, energy consumption and waste generation would be reduced. Almost two-thirds of apartments (63%) used sorting containers. We can recommend separate bins for plastic, paper, and mixed waste for every single apartment. More than one-half of apartments (53%) disposed of saving appliances. When replacing appliances should be selected, as the most economical option is at least A +. On the other hand, many appliances are relatively new, so we can recommend replacing only those appliances that end their life (e.g., refrigerators, washing machines, TVs, vacuum cleaners, etc.). Information to guests by staff and sticky notes - this environmental measure used 3% of apartments only. Guests should be advised to conserve water in regular hygiene so that they can flush with a more economical flushing device and not throw away anything except toilet paper in the toilet. Furthermore, guests should be aware of the need to sort waste, not to open windows when air conditioning or heating is on. This information can be provided by the owner or manager upon arrival. It was surprising that more than one-third of apartments (35%) was interested in the individual heating control installed in the rooms. If the apartment is not occupied by the guests, it is not environmentally friendly to use the air conditioning or to heat in the apartment. It is entirely sufficient if the heating or air conditioning is turned on a few hours before the expected arrival of the guests. There is also the possibility to display multilingual labels on individual recommendations, just as with the eco-friendly towel warnings. Over one-half of apartments (55%) changed linen and towels on request. Dual flush toilets had 45% of apartments only. Unsatisfactory results were noticed with measures such as windows thermal insulation (3%), cleaning products and laundry detergents friendly to the environment (3%), informing guests about environmental efforts (3%), central lighting switches in rooms (14%), reducing the flow of faucet aerators or shower heads (19%). Some environmental measured did not use in apartments (table 2).

Environmental measures/ Accommodation facilities	Apartments	Hotels *	Hotels **	Hotels ***
sorting containers	63	67	43	55
sorting bio-waste	-	-	-	7
windows thermal insulation	3	-	-	59
heating regulation in each room individually	35	-	14	55
saving appliances	53	-	57	34
compact fluorescent lamps and LED lamps	67	-	71	93
central lighting switches in rooms	14	-	29	62
using recycled paper	21	-	-	31
reducing the flow of faucet aerators or shower heads	19	-	-	7
dual flush toilet	45	33	29	28
changing linen and towels on request	55	-	14	66
cleaning products and laundry detergents friendly to the environment	3	-	14	14
minimizing the use of disposable products	-	-	-	62
giving priority to products with the "eco" label	-	-	-	10
green management employees' education	-	-	-	3
informing guests about environmental efforts	3	-	14	3

Table 2: Environmental measures used in accommodation facilities in the city of Sofia (%)

Compared to hotels in Tourist and Economy class, they have achieved better results with some measures (figure 1) [26].

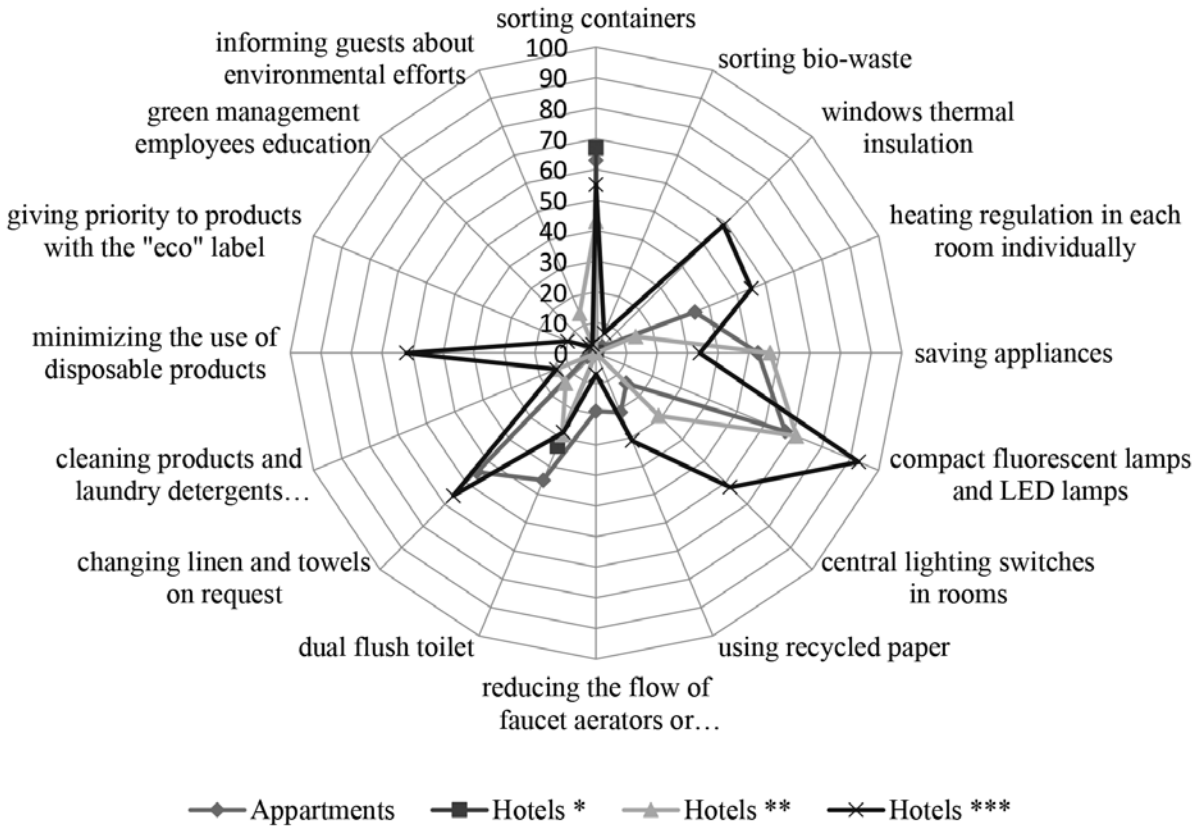

Figure 1: Environmental measures used in apartments and hotels in the city of Sofia (%)

Following the world trends in tourism, Sofia city invests in the development of its accommodation facilities, taking into consideration the sustainable development of the apartments. In general, our recommendation is to invest more funds towards faucet aerators and water saving shower heads and sorting containers. It is utterly inadequate that surveyed apartments reach very low values. The faucet aerator achieves great results and costs no more than 10 euro, and water savings are in the range of 48% to 84%. This is in line with results from previous studies in the field of green management in accommodation facilities in Czechia and Slovakia [18], [32]. We have to state that none of surveyed apartments were not interested in sorting bio-waste (in comparison the same conditions were found in Tourist and Economy class hotels, almost the same value was noticed in Standard class hotels). We also expected higher values will be with sorting containers. [33] say that 72% hoteliers in Hoi An, a tourism city in the center of Vietnam, disliked storing waste in their hotels, while 58% of the hotels thought that they lacked information and skills in recycling. Some hotel managers explained that recycling took more time and labors (42% and 22%) and was unsanitary (18%). It was a surprising fact because there is a law about sorting waste and many hotels do not recycle at all. We agree that mentioned accommodation facilities should definitely invest in the green initiatives. [9], [20], [28].

Managers or owners of the apartments stated that environmental management implementation in accommodation facilities increase sales and promotion, sometimes improve the environment. Compared to Standard class hotels were noticed different results [26] - providing a competitive advantage over other accommodation facilities, cost reduction, and guest preferences. On the other hand, the managers have noticed that there is no advantage of the green management implementation in hotels in the Tourist class (figure 2).

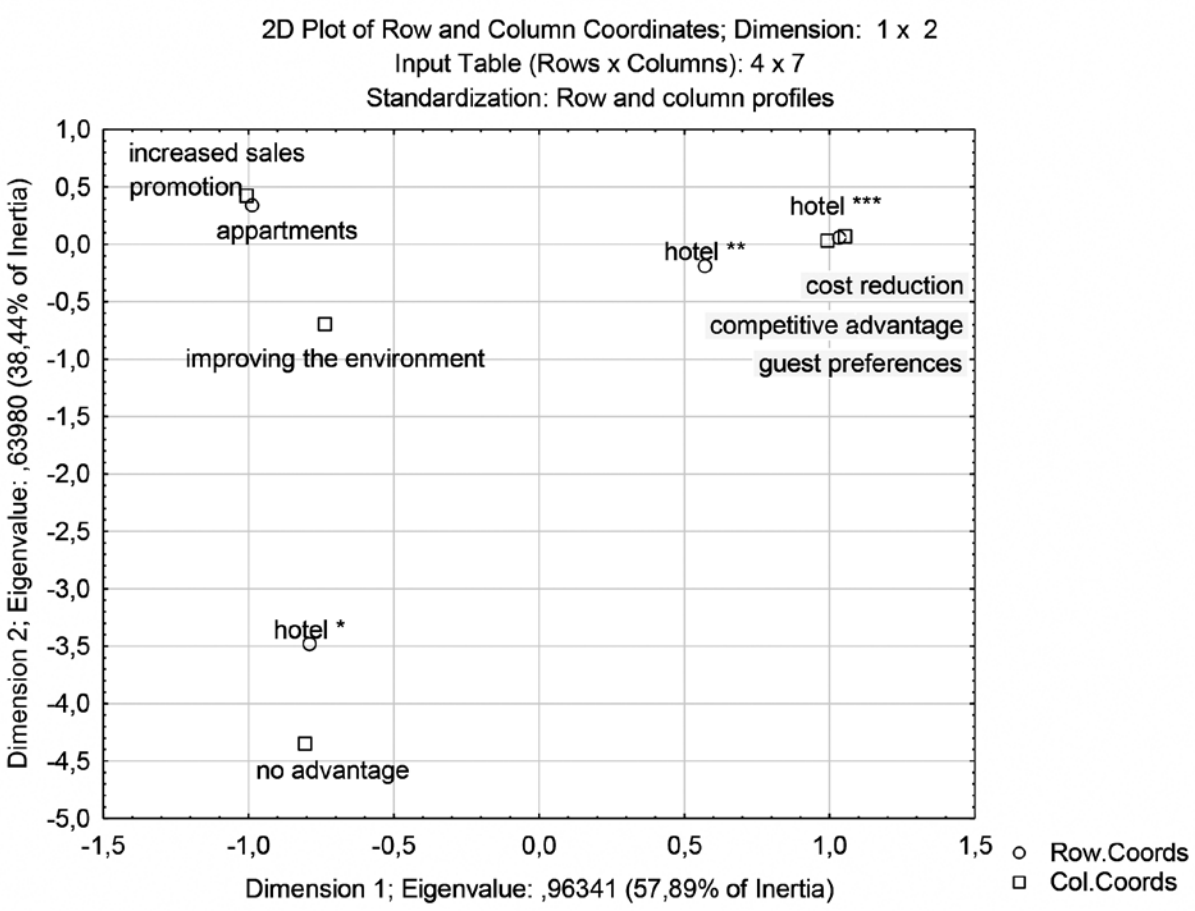

Figure 2: Advantages of environmental management in accommodation facilities

4. LIMITATIONS

This paper contributes to the research of apartments' environmental measures in some aspects, but there are several limits, too. On the other hand, the mentioned limits provide directions for further research.

Firstly, our research cannot be generalized. We were merely interested in apartments, and the research was conducted in the city of Sofia only. We would like to investigate other vital towns in Bulgaria (e.g., Bourgas, Varna, Plovdiv, etc.) and compare it with the results of Sofia city. Subsequently, we would like to focus on other towns and regions and map the adoption of environmental measures in different types of accommodation facilities in Bulgaria. We also mapped accommodation facilities and their environmental measures in Czechia. We think that a comparison of these two states would be desirable.

Secondly, an in-depth analysis was not realized with environmental measures. It was not stated there whether the hotels were focused on the particular environmental measures or not.

Finally, in our future research, we would like to focus on environmental measures individually (e.g., analyzing solid waste practices in a hotel - categories such as paper, cardboard, garden waste, kitchen and food waste, tissues, PET, nylon, plastic, glass, etc.). In our opinion, the results would have a more meaningful value.

5. CONCLUSIONS

The issue of environmental protection and addressing global environmental problems is becoming one of the leading issues in some departments. Offering environmentally friendly products and services is generally one of the basic requirements for many customers. This trend can also be seen in tourism. Tourists are increasingly looking for environmentally friendly services that have a minimal negative impact on the environment (e.g., accommodation facilities with "eco" certificate the Flower, the Green Key, etc.). These certificates guarantee that the accommodation facility behaves in an environmentally friendly manner at all stages of the business process. However, their acquisition is subject to several stringent criteria that must be met and also require fees. We agree that the implementation of environmental measures is a great benefit in terms of the sustainability of tourism, financial savings and the image of the business.

The findings provide us with answers to the research question: Which environmental measures are most used in the surveyed apartments? Generally, the surveyed apartments had the best results with compact fluorescent lamps and LED lamps, sorting containers, and changing linen and towels on request. We have to state that selected apartments in the city of Sofia attained abysmal results.

On the other hand, the deployment of environmental measures is not always easy and often brings extensive changes or substantial investments. We believe that not all accommodation facilities choose to pursue an environmental certificate. However, environmentally friendly behavior can also be seen in accommodation facilities that do not have any certificate, and this is the case for all the apartments in the capital city of Bulgaria. If they do not have a certificate in the future but use some environmental measures, they can at least partially contribute to environmental protection.

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AN INTEGRATED MODEL FOR IMPLEMENTING A BUSINESS PERFORMANCE MANAGEMENT SYSTEM IN SMES IN AUSTRIA AND SLOVAKIA*

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Abstract: ***Purpose*** *– The purpose of this paper is to propose an integrated model to implement a business performance management system in small and medium sized enterprises (SMEs) in Styria (Austria) and the region of Zilina (Slovakia) taking into account the implementation hurdles encountered in these regions.*

Design/Methodology/approach *– To answer the research question, a multi-stage research design was chosen: After a literature research on implementation hurdles, a* ***qualitative survey*** *among small enterprises in Styria was carried out to get the current status. On the basis of a literature review and the results of the qualitative survey a standardized questionnaire was developed and sent to randomly selected SMEs in Styria (Austria) and Žilina (Slovakia). The results serve to* ***develop an implementation and ongoing improvement model*** *that takes into account the characteristic implementation hurdles.*

Findings *– The empirical results from the qualitative and quantitative surveys show that many hurdles arise in the implementation process of a BPM system in Styria and Zilina. It turns out that especially companies without a BPM-system, which want to introduce one, underestimate certain problem areas.*

Research limitations *– The survey on the collection of implementation hurdles was limited to the regions of Styria in Austria and Zilina in Slovakia. Referring to the sample size required for the descriptive research design, the number of responses could have been higher (probability of error). The implementation model has to be tested in practice.*

Practical implications *– Almost half of the Austrian companies surveyed do not have a PM-system. That means that they will sooner or later have to reckon with the implementation. It turns out that some problem with the implementation is underestimated by these companies. The model takes these problems into account and can sensitize managers for them. A practical problem will be that the implementation requires a lot of knowhow in different management systems and resources.*

Keywords *– Business Performance Management, Implementation of a Management System in SME, Phase Model, Empirical survey, Austria, Slovakia.*

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1. INTRODUCTION

Business performance management in small and medium sized enterprises (SMEs) reflects queries of top management and owners and also financial constraints and limits in know-how, which is linked also with the lack of qualified employees. The reason for implementation is also requirement to know performance of enterprises key processes and also to maintain long term sustainability and competitive position of an enterprise.

When characterizing SMEs, it is often cited its orientation to technical and technological aspects of production and a product and to suppression of other managerial aspects - financial and marketing [1]. Despite the fact that managerial activities in SMEs are extremely differentiated it can be stated that also because of objective reasons, the business performance management system - agenda is underestimated in many SMEs and it is not paid attention on (mainly due to lack of personnel capacities or for financial reasons).

At the same time, however, under Slovak conditions (and confirmed by our statistical survey), there are many SMEs that apply business performance system in their managerial activities [2].

In this paper will be applied the terms business performance management as complex to business measurement. Business measurement deals with quantification of identified process – key process. Key process is a process that is in relation to enterprise strategy. Business measurement is associated with key performance indicators (KPI). These indicators, therefore, refer to the achievement of the processes, objectives and thus to the achievement of the corporate objectives set out in the company strategy. In addition to the KPI issue, the performance evaluation also addresses the issue of responsibility for the business objectives achieved as well as the competencies and responsibilities of the relevant staff accountable for taking measures and implementing them. Business measurement is thus a condition for the application of business management system in an enterprise. The measures resulting from the analysis of the achieved indicators represent a quantitative basis for applied managerial measures.

2. RESEARCH APPROACH

The aim is to develop an implementation model for small and medium sized companies in Austria and Slovakia, based on the implementation hurdles occurring in these countries. The model also serves the continuous improvement of the Business Performance Management System. For the definition of SME**,** the recommendation of the European Commission is followed [3]. To answer the research question, a multistage approach was conducted.

First, occurring problems that arose during the implementation of a performance management systems were identified on the basis of a literature review. Literature contains a couple of number of articles in which implementation hurdles are described. De Waal and Counet have identified 31 problem categories on the basis of a literature review [4]. An essential aspect for a successful implementation is the human element and his behavioral factors. De Waal has identified 18 behavioral factors that seem to be important to the successful implementation and use of a performance management system [5].

The identified problems from the literature review were prepared in a qualitative questionnaire with which 15 small entrepreneurs in Styria were asked about the application of a performance

management system. Not surprisingly, none of the companies uses a formalized performance management system. The optimization of the business areas is done intuitively. As key figures used to measure this are sales, profit and customer and employee satisfaction. The latter is not surveyed but subjectively assessed by the entrepreneur himself.

The findings of the qualitative survey and the literature review is the basis for a standardized questionnaire. The questionnaire has a filter so that companies with and without PM can answer the questions.

Austria. At the time of examination 3.785 companies fulfill the criteria of SME in Styria. The required sample for a descriptive study, taking into account the confidence interval of 90%, a sampling error of 5% and an assumed distribution of 50%, is 253. The questionnaire was sent out to 2.519 companies in several replies. Due to the low response rate, telephone calls were subsequently made. The response amounts 107 answered and usable questionnaires. Of these, 62 companies already have a performance management system. 42 have none, where 18 companies plan to introduce a PM-system in the near future and 24 don't.

Slovakia: There were 567 131 SMEs in Slovakia in 2017 [6]. Very similar to Austria the situation was in Slovakia concerning the research data. Due to very limited first round respond rate we applied the second round. In this phase more entrepreneurs were consulted. Filling in the questionnaires were mainly based on personal contacts. The total amount of answers were 179 to 20 questions dealing with various aspects of business performance and its implementation in an enterprise. Because of the fact that not all the questions were answered by entrepreneurs, there is a gap in some questions expecting that total amount of replies will be 179.

3. RESULTS: PROBLEMS IN PRACTICE IN AUSTRIA AND SLOVAKIA

The implementation of a Business Performance System can be described as a process. Many problems occur in the individual process phases.

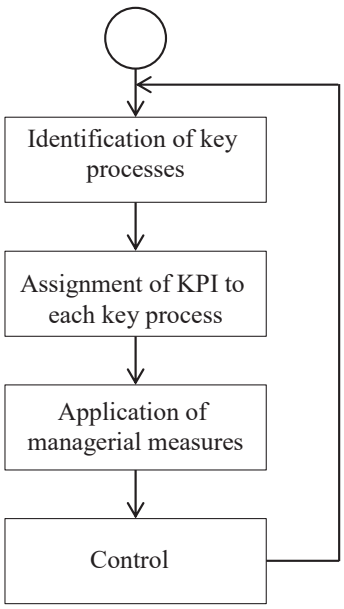

Figure 1. Implementation and running processes within business performance system

The issues in the process can be represented as follows:

- creating a system of indicators for key business processes - performance measurement; performance measurement can be performed with IT support (specialized software) as well as non-computing - without IT support; both approaches are supposed to secure data sources and their processing,
- establishing a business performance system that incorporates achieved results, measuring into an enterprise's management system; to enter tasks and monitor their performance, an internal system (project, agenda) is expected - with or without IT support,

Identification of key processes means clearly define processes associated to core business and also to strategic objectives of an enterprise. In SMEs practice it is often reflected complete misconception on the part of managers. In some applications there were as the key processes identified those that were in relations to responsible field (-s) in managerial activities; there was no clear link to the strategic objectives. At the same time, consideration should be given to the availability of data and the need for the transfer of these data to the responsible employee for the agenda. Application of managerial measures is in fact about KPIs transformation and their interpretation to specific steps assign to responsible employees within an enterprise. The objective of a control is to verify validity of measures and at the same time the correctness of the company's direction with regard to sustainability and competitive position.

Based on the results of the statistical survey [2] and the personal communication of authors with entrepreneurs it can be stated that:

- in a vast majority of SMEs, it is not elaborated the strategy plan/business plan; entrepreneurs/ responsible persons were not able to formulate key processes in an enterprise,
- business performance management is mainly focused on measurement of some performance parameters; these ones reflects owners`/CEO` professional preferences,
- decision to business performance system implementation (often associated with the purchase of specialized software) is isolated decision of a member of top management; no managerial framework is developed that would integrate measured results into managerial activities and communication within an enterprise; in practice it means that business measurement is limited – there can be hardly proved results, positive benefits to balance costs derived in business performance system,
- the performance measurement is reduced to selected employees, the information flow in the enterprise is not modified, and the competencies and tasks resulting from the performance measurement are not explicitly defined; in connection with a steady increase in the agenda for a limited number of staff, puts pressure on the rejection of the importance of this agenda; in enterprises dealing with quality management, however, the business performance agenda is up to date.

Figure 2 shows the results of the companies that have a PM-system (n = 62) and those that have none and want to implement (n = 18). It is evident that companies that have not yet dealt with the implementation underestimate certain problems (difficulties in delimiting what is to be evaluated, selection of responsible employees and lack of global thinking in the departments). Certain problems are overestimated, which were not so confirmed by the companies with a PM-System.

Figure 3 shows reasons why a BPM has no yet been or will not be introduced. Companies that do not want to introduce a performance management system have indicated as the most common reasons (multiple answers, total number of mentions = 57): lack of time resources, lack of expertise, no qualified personnel in the company and unclear strategic direction of the company.

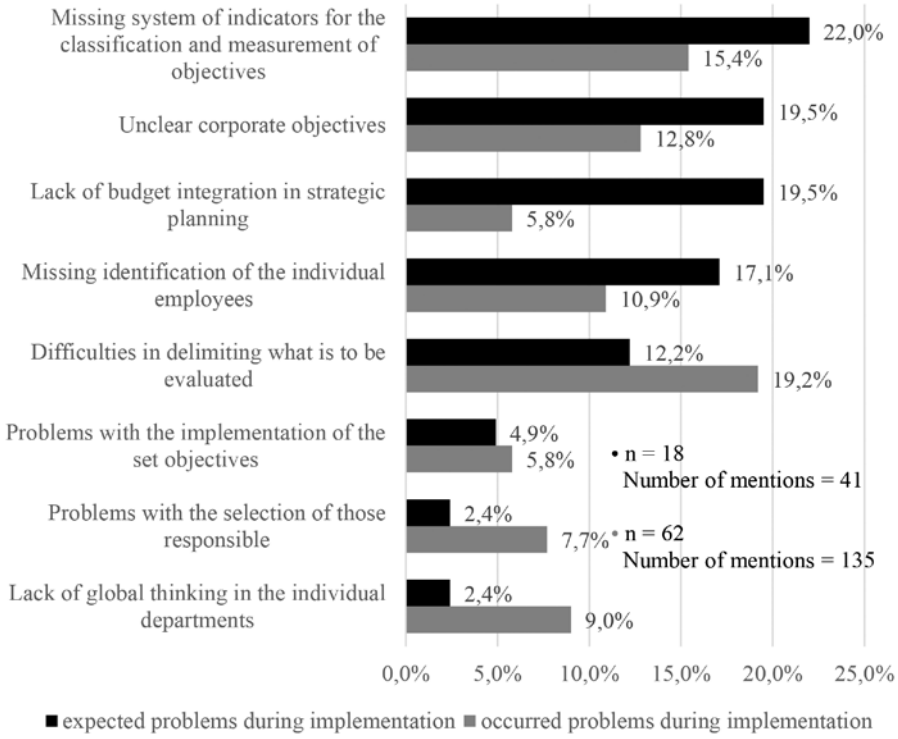

Figure 2. Comparison of problems encountered and expected during implementation

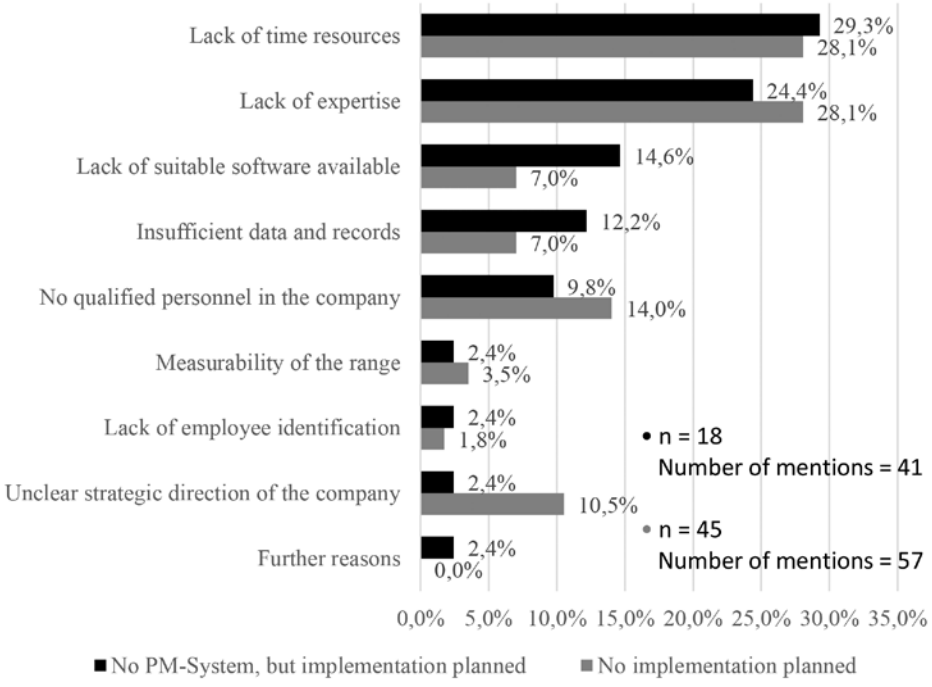

Figure 3. Reasons why BPM has not yet been or will not be introduced

In Slovakia to the question: "We deal with performance management in an enterprise" was replied – regularly (49%), irregularly (25%), not at all (24%).

In implementation were found as the biggest problems following: in assignment of binding tasks related to performance results (49%), in determining the content of the performance - what will be the subject of evaluation (32%) and in determining competencies (19%).

For companies that plan to implement BP in an enterprise they plan to focus on financial measures (40%), measures dealing with satisfaction of customers (8%), measuring of quality of human resources (22%), strategy evaluation (5%), the rest (25%) do not have any ideas.

Surprisingly in 64% of questioning entrepreneurs have an appointed responsible person for the agenda.

4. THE FRAMEWORK OF IMPLEMENTATION

Based on the results of the statistical survey [2], [7], as well as personal interviews with entrepreneurs, the following problems were identified:

- lack of qualified employees,
- lack of managerial communication systems within the results and objectives communicated,
- lack of time and doubts about the benefits of measuring and evaluating performance,
- the content of the agenda is facultative; therefore, a lot of executive employees consider this agenda to be irrelevant / insignificant (in contrast to binding agendas, usually associated with legal standards),
- Unclear corporate objectives,
- Missing identification of the employees,
- Difficulties in delaminating what is to be evaluated,
- Problems with the implementation of the set objectives,
- Problems with the selection of responsible employees,
- Lack of global thinking in the departments.

The problems largely coincide with those described in the literature. De Waal and Counet [4] identified on the basis of a literature review 31 problem categories related to performance management systems implementation:

(1) Management puts low priority on the implementation,
(2) The implementation requires more time and effort than expected,
(3) There are insufficient resources and capacity available for implementation,
(4) The organization is in an unstable phase,
(5) The PMS implementation does not have a clear goal,
(6) Lack of management commitment,
(7) Period of attention from management for the implementation of the PMS is not long enough,
(8) Organizational members lack a positive attitude towards the PMS,
(9) Insufficient commitment from middle management and staff for PMS implementation and use,
(10) The current ICT system does not support the PMS adequately,
(11) Organizational members are not adopting the right management style,
(12) The organization does not have a clear and understandable strategy,
(13) I tis difficult to define relevant CSFs,
(14) There is not enough focus on internal management and control,

(15) It is too difficult to decompose goals for lower levels in the organization,
(16) There is lack of knowledge and skills in regard to the PMS,
(17) The KPIs are not linked to departmental, team and individual responsibilities,
(18) It is difficult to define relevant KPIs,
(19) There are too many KPIs defined,
(20) The organization measures the wrong KPIs,
(21) There is too much focus on the results of the implementation, while the change process of the organization is ignored,
(22) There is resistance from organizational members towards the new PMS,
(23) There is an insufficient link between the PMS and the reward system,
(24) The PMS lacks cause and effect relations or is over-complex due to too many causal relations,
(25) The organization does not have a performance management culture,
(26) The PMS is not used for daily management of the organization,
(27) The PMS is not regularly updated and maintained after implementation,
(28) There is no organizational member appointed to take ownership of the PMS,
(29) There are difficulties in getting the data to calculate the performance indicators,
(30) The PMS gets a low priority or its use is abandoned after a change of management,
(31) The organization does not see (enough) benefit from the PMS.

If the problems are assigned to the phases of the model (Figure 4), it becomes clear in which phases the most problems are.

Phase	Figure of Problem	Cumulative Nr. of Problems
1) initiation and planning	(4), (6), (8), (12), (13),	5
1) & 2)	(15), (17), (18), (19), (30), (31)	6
2) implementation	(1), (2), (3), (5), (7), (9), (22), (28), (29),	9
1) & 3)	(10), (11), (20), (21), (23), (25), (26), (27),	8
3) control	(14), (24),	2
1) & 2) & 3)	(16)	1

Table 1: Problems and their assignment to BP implementation phases

The Table 1 proves that the highest problem related to agenda PM in an organization is the phase implementation. The cumulative number of problems related to phases A) and B) proves the importance and also difficulties in organizations in planning and implementation. Both are related to corporate culture and willingness of top management and employees to improve effectiveness and efficiency in an organization.

In order to compare the situation in Slovakia with findings cited above there were created questionnaires with ambition to:

a) identify reasons why an organization has not BPM implemented, but it plans do so in the short term,
b) identify reasons why an organization has not BPM implemented yet,
c) identify reasons and results in an organization that has implemented and operates BPM,
d) identify reasons why an organization that implemented BPM has cancelled it.

With the objective to minimize assumptions of failure in implementation of business performance system in SMEs it is further in the paper proposed the procedure that can help SMEs in successful implementation and operation of business performance system in an enterprise. Hence the concept of project management will be applied in implementation and operation of business performance system in SMEs in the Slovak republic.

In this part, besides the general characteristics of the project management phases, the specificities that are relevant to the implementation and operation of the business performance system in the enterprise will be given.

The list of risks faced by enterprises in implementation of projects is as follows [7]:

- lack of support by top management and incompetent work of the project leader,
- missing justification of the project,
- changing conditions of the project,
- lack of resources for development, implementation and routine operation (human, financial, information, etc.).

On the basis of the statistical survey and discussions with SME managers, the most common risks to entrepreneurs in implementing and routine operations were the following identified:

- lack of support for top management and responsible staff,
- unclear and changing expectations,
- due to the project's readiness, implementation and routine operation have not been associated with expected benefits,
- negative enterprise culture and attitude of employees during implementation and operation of business performance management,
- results were not communicated to top-management and the results did not draw conclusions about the practical activities of the company, its employees,
- there was not formally appointed project manager (due to the size of an enterprise it is also possible to talk about informal delegation); it was rather a voluntary initiative of an employee (member of top management) of an enterprise,
- lacking communication relationships necessary for the implementation and operation of the business performance management system; the responsible employee may have not data, competencies or know-how.

As the most important factor was the fact that the company implements the quality management system (usually required by customers). These enterprises have a greater affinity for project management (in general) and have understood the link between quality management and business performance. Therefore, they position to implementation and business performance operation was stated as an unnecessary and burdensome - non-contributory additional benefit for the enterprise.

Based on the implementation problems and the existing implementation models/frameworks (1) three-phases-model for implementing a value-orientated management system [8], (2) phases in developing a performance measurement system [9], (3) framework to assess performance measurement systems in SMEs [10], (4) Reference Model for integrated Performance Management Systems [11], (5) factors and measures for the implementation of a performance management system [12], (6) four-phase process concept for the implementation of a performance management system [13] and (7) St. Galler Management Modell [14] an extended implementation model was developed.

The integrated model consists of three phases (see Figure 4):

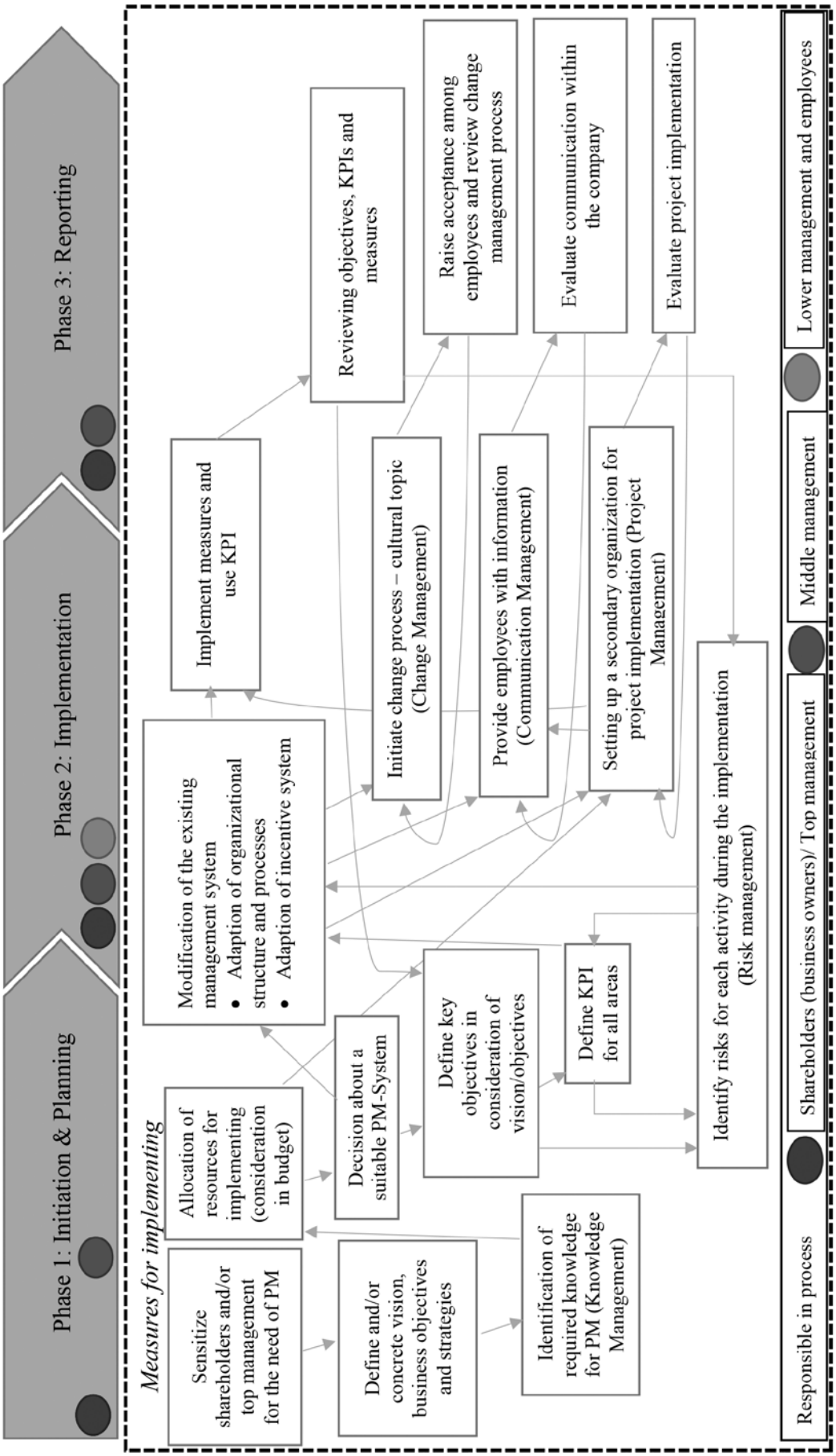

Figure 4. Integrated model for implementation of a performance management system

Phase 1: Initial phase of the project and project planning
The results show that almost a third of the companies with PM were experiencing problems with implementation because of unclear corporate objectives. Independent of PM first step is to formulate clear vision, objectives and strategies. In addition, the most important decision-makers (Top management) must be made aware of this topic.

Before BPM can be introduced, knowledge of the various models, procedures etc. must be acquired. Furthermore, in this phase are defined responsibilities of team members, their objectives, proposed time table for tasks. Allocation of financial resources depends on the size of the team and the explicit goals related to the project.

One of the most important aspect for this phase is the attitude of top management. Positive attitude means that they believe that the implementation of BPM will increase competitive position and makes a company more sustainable.

Phase 2: Implementation
In this phase the performance indicators must be defined. Process owners here are the Top and Middle Management. In this phase it is essential that the performance component is added to the existing management system. This means that changes can also occur in the organizational structure, the incentive system and the existing processes.

Phase 3: Reporting
In the last phase, the implementation of the measures has to be checked. In this context it is of particular interest whether the key figures are suitable, whether the communication works and whether the topic has been accepted by the employees. The results flow back as feedback, which in turn leads to an adjustment of the management system. Important management instruments here are change management and communication management. Referring to the summary drawn from the literature of [15] especially the barriers to change are corporate culture, internal capabilities, technology, availability of necessary resources and capabilities and motivation for change.

4. CONCLUSION AND OUTLOOK

The paper deals with implementation of business performance system in SMEs. Statistical surveys and discussions with SME management in Slovakia show that there are a number of reasons why SMEs do not implement business performance or why they consider it as a non-prospective or relatively in short period of time they cancelled the project due to not delivering the benefits.

It is fundamental that the project meets the objectives of the owners and the executive management. Focusing on key processes and therefore business objectives is essential. Also, the implementation approach is significant - if the implementation decision is isolated by the top management decisions without a competent dialogue, this fact may cause aversion to the implementation of the system; the consensus of all concerned is therefore inevitable - whether in the position of top management or employees to whom the agenda will be assigned.

Therefore, the position of the Project Leader is recommended, and he (she) is guided by the leadership and competence of the whole process in communicating with other responsible persons. Performance ratings may not be reduced to performance measurement; KPIs represent a quantitative expression of the observed key processes indicators. Performance measurement is a subset of the performance management - performance appraisal is focused on applying management measures to strengthen the competitive position and sustainability of the business.

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THE CITY OF ZAGREB AND CROATIA: A PICTURE OF CAPITAL CITY'S CONTRIBUTION TO NATIONAL ECONOMIC GROWTH

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Abstract: *In today's world the wealth of nations rests predominantly on the wealth creating effect of their cities. Capitals are often economic dynamos of their national economies and in this regard the paper provides insight into the City of Zagreb's importance for Croatia. The importance in the growth of GDP is observed from the perspective of (de)population changes in the country. Starting from the fact that the GDP per capita indicator is often used to point out regional inequality and as key argument for claiming more "fairness" e.g. in fiscal revenue distribution, this paper suggests that "trading" the productive potential of Zagreb for a nation-wide attenuation of resources should be carefully weighted to avoid hampering effects on the nation's GDP.*

Keywords: *City of Zagreb, economic growth, depopulation, decentralization.*

1. INTRODUCTION

This paper provides insight into the economic and demographic strength of the City of Zagreb when compared with national trends. On the one hand, the concentration undoubtedly represents the source and drive of economic power - a platform for innovation, entrepreneurship, and economic growth. On the other hand, national political discussions on (regional) inequality issues, with buzzwords such as: solidarity, fairness e.g. in fiscal revenue, (re)distribution and/or "more balance", result in a decline of generators of growth. GDP and population, i.e. GDP per capita is perhaps the most clichéd term used in these political (and media) debates. Under the circumstances of profound demographic changes that Croatia is facing, political reasoning on decentralization, development, and growth without an all-encompassing and analytical expert basis, the weakness of decision-making that traditionally strives towards status quo, rather than fundamental change, is even more pronounced.

National decision-makers do not address the highly defragmented structure of Croatian local government and self-government, but, under the parole of fairness and a reduction of regional differences, they, in fact, trade development of the capital cities and national growth for financing a suboptimal regional territorial organization.[4] Under this status quo, even the best equalization scheme is, in essence, unfair. This paper does not argue against the process of decentralization but, rather, raises concern about the optimal degree of fiscal decentralization and horizontal equalization – they should not result in budgetary imbalances for bearers of national economic growth. This paper gives insight into the demographic picture of Zagreb compared to that of

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[4] See e.g. [1].

the nation, followed by the City's role in Croatian economy. In part three, the aforementioned are discussed in the light of Croatian fiscal decentralization, followed by concluding remarks.

2. DEMOGRAPHIC SNAPSHOT OF CROATIA AND ZAGREB

The long-term population growth trend, in which Croatia reached nearly 4,8 million inhabitants in the late 1980s, was disrupted by the war and the transition of the 1990s. According to the latest census in 2011, 4,28 million people lived in Croatia, roughly the same amount as in the mid-60s of the last century. The next census in Croatia will be held in 2021, meaning that the time line between the censuses is currently deep in the area of statistical estimation. It is highly likely that, during the interim period, the estimated population of Croatia will decline and Croatian demographers have already rated the situation as very alarming.[5] According to data from the Central Bureau of Statistics, the 2017 mid-year population estimate for Croatia was 4.124.531 inhabitants, and for the administrative area of the City of Zagreb – 802.762 inhabitants.[6] The comparison of population trends (Figure 1) points to the Capital's strong resistance against the national trend: while the national snapshot indicates a dramatic depopulation and a drop towards the psychological limit of 4 million inhabitants, for the City of Zagreb, this trend (in overall observation) has a slightly positive curve. However, this snapshot is not a result of a natural increase, but of a positive (internal) migration rate. It is generally accepted, as well as confirmed by European immigration statistics, that a predominantly younger population emigrates from Croatia in search of work, i.e. people in their twenties and thirties.[7]

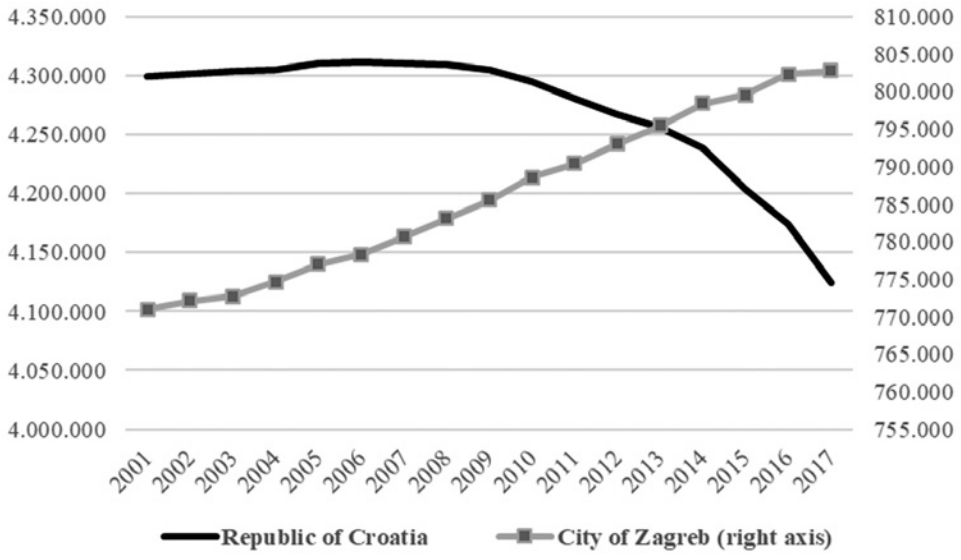


Figure 1: Mid-year estimate of total population from 2001 to 2017 (persons)
Source: Author's work, based on Croatian Bureau of Statistics data.

5 See e.g. [2] - [6].

6 Demographers believe that Croatia had fewer than 4 million inhabitants in the beginning of 2019 [7] and point to the key problem of Croatian official (e)migration statistics, which only include officially unregistered persons and that the dynamic, i.e. that net emigration, for the period 2013-2016 is actually several times higher than official statistics [8].

7 For example, according to German migration monitoring by the Federal Office for Migration and Refugees, there were 50.283 immigrants with Croatian citizenship in 2017, of which 7.509 were juveniles (15%) and 32.243 adults between 18 and 45. They made up almost 80% of the total number of Croatian citizens who moved to Germany in 2017 [9].

Since Croatia's accession to the European Union, the City of Zagreb has evidently not been immune to emigration out of the country, but it has managed to maintain a positive total migration balance. Compared to a large increase in the economic (e)migration of the population at a national level, the opening of the European market to Croatian labour force has defeated Croatia, but (at least for now) has not defeated the City of Zagreb (Table 1).

	2013	2014	2015	2016	2017	2013-2017
REPUBLIC OF CROATIA						
Net migration with foreign countries	-4.884	-10.220	-17.945	-22.451	-31.799	-87.299
○ Immigrants						
-from another county	29.959	33.806	33.418	31.512	30.433	159.128
-from abroad	10.378	10.638	11.706	13.985	15.553	62.260
○ Emigrants						
-into another county	29.959	33.806	33.418	31.512	30.433	159.128
-abroad	15.262	20.858	29.651	36.436	47.352	149.559
CITY OF ZAGREB						
Total net migration	2.871	3.040	2.132	2.706	1.003	11.752
○ Immigrants	11.606	13.116	13.644	13.765	13.758	65.889
-from another county	9.012	10.376	10.886	10.435	10.043	50.752
-from abroad	2.594	2.740	2.758	3.330	3.715	15.137
○ Emigrants	8.735	10.076	11.512	11.059	12.755	54.137
-into another county	6.731	6.955	6.466	6.183	5.941	32.276
-abroad	2.004	3.121	5.046	4.876	6.814	21.861

Note: Mid-year estimates.

Table 1: Immigrant and emigrant population from 2013 to 2017 (persons, in thousands)
Source: Author's work, based on Croatian Bureau of Statistics data.

As with most major European cities, the population of Zagreb does not grow on the basis of natural growth, but primarily due to new migration. The rate of natural increase in 2017 was -0,9‰, while, in Croatia, it was -4,1‰.

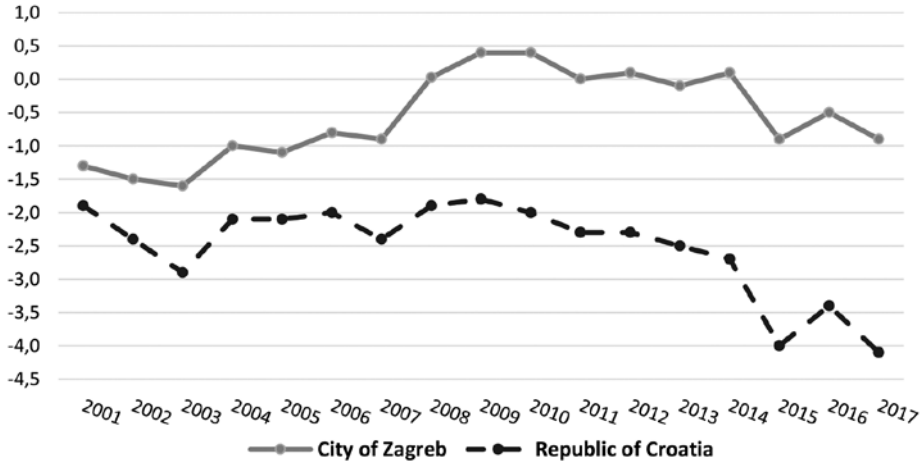


Figure 2: The natural increase rate from 2001 to 2017 (per thousand inhabitants)
Source: Author's work, based on Croatian Bureau of Statistics data.

Figure 2 shows the trend of the rate of natural increase in the City of Zagreb and Croatia since the beginning of the millennium. This City's rate is continuously better than the national rate, and the difference has never been greater than in recent years. Compared to the Republic of Cro-

atia, the indicators of natural movement are more favorable in the City of Zagreb, partly because of a slightly younger population structure and an urban demographic policy (higher birth rate), and partly because of the concentration of top Croatian health care institutions in Zagreb (lower mortality rate). Overall, in recent years, the share of younger people in the total population of the city has decreased, while the share of the older population is constantly increasing, continuing the long-term trend of demographic population aging (Figure 3).

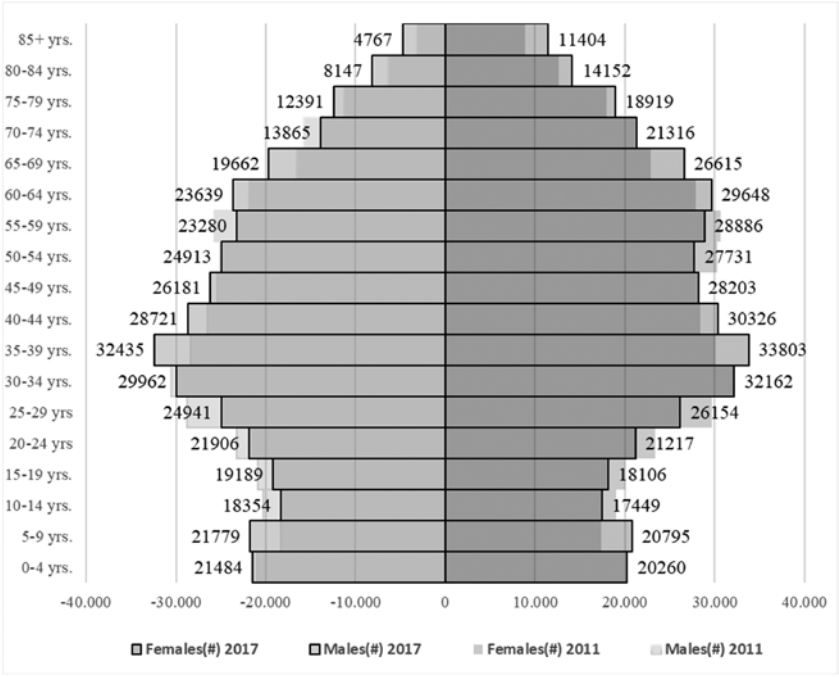


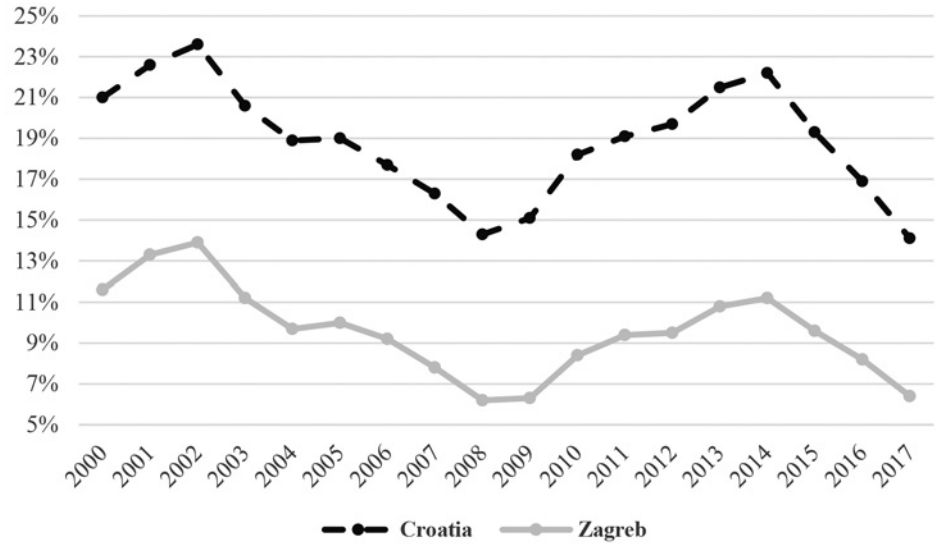
Figure 3: Age/Gender Pyramid of the City of Zagreb according to Population Census 2011 and Mid-Year Assessment of Population 2017
Source: Author's work, based on Croatian Bureau of Statistics data.

3. CROATIA'S CAPITAL CITY ECONOMIC IMPORTANCE

Since 2014, the rate of unemployment in Croatia has been rapidly falling and converging toward the unemployment level in the capital city in the past few years (Figure 4). In 2017, there were around 1,383 million people employed in Croatia, out of which 413 thousand in Zagreb; compared with 2014, employment in Croatia increased by 4,56%, and in the City of Zagreb by two percentage points more. At the same time, Croatia's active population shrunk by 5,4%, while the City's rose by 2,1%. Furthermore, it seems that the country has, in just a few years, moved to the other extreme of labour shortage, which is most prominent before the tourist season.[8] Although the actual proportions and consequences of depopulation and reduction of the working population have yet to be established/assessed, the economic and social challenge will certainly be great.[9] Compared to other major cities, the population of the City of Zagreb is twice as big as all of these cities, or Zagreb is four, six and eight times larger than Split, Rijeka and Osijek respectively.

[8] See e.g. [10] - [15].

[9] In this context, Croatian urban areas, especially the City of Zagreb, are of particular importance because, apart from the fact that they are the cornerstones of economic development, they are places where good care may be provided for the elderly population.



Note: The rate is calculated as a relation of unemployed persons and total active population.

Figure 4: Registered unemployment rate in the City of Zagreb and Croatia from 2000 to 2017
Source: Author's work, based on Croatian Bureau of Statistics data.

Although almost 60% of the Croatian population lives in towns, every fourth person lives in one of the four largest cities. Pursuant to the Act on Regional Development of the Republic of Croatia, the Cities of Zagreb, Split, Rijeka, and Osijek are the centers of Croatian urban agglomerations (UA), established during 2015 and 2016.

	Urban agglomeration				Croatia
	Osijek	Rijeka	Split	Zagreb	
Entrepreneurs	3.818	6.971	10.075	47.504	120.081
Number of employees	28.529	41.497	61.190	387.134	882.884
Total Revenues (000 EUR)	2.528.570	3.576.542	5.115.369	50.848.443	90.936.477
Total Expenses (000 EUR)	2.522.060	3.387.967	4.859.005	48.351.168	87.099.294
Profit (after tax, 000 EUR)	110.606	211.575	332.991	3.220.888	5.549.154
Loss (after tax, 000 EUR)	116.748	59.436	133.495	1.271.392	2.615.481
Consolidated net result (000 EUR)	-6.142	152.139	199.496	1.949.495	2.933.673
Export (000 EUR)	596.750	811.690	773.865	8.205.869	18.477.372
Import (000 EUR)	344.744	293.630	447.550	10.703.082	15.792.051
New long term invest. (000 EUR)	65.642	109.351	153.612	1.579.095	3.179.940
Average monthly net salary (EUR)	608	693	637	821	720

Note: Recalculated to EUR based on Croatian National Bank average annual (mid) exchange rate.

Table 2: Business Data for Entrepreneurs Headquartered in UA Area in 2017
Source: Author's work, based on [16].

In 2017, of the 120.000 Croatian entrepreneurs who submitted Financial and Statistical Statements to the Financial Agency for 2017[10], almost 57% had headquarters in the UA. By far, the majority of them are in the UA area of Zagreb (47.504), where every fourth entrepreneur had their headquarters, with a share in the total number of UA entrepreneurs in the amount of 69,5% (Table 2). The UA entrepreneurs employed over half a million people (518.350) or 7,6 employees per business enterprise, of which 387.134 in UA Zagreb (on average 8,1 employees). Entrepre-

[10] The Financial agency (FINA) is a public company which collects financial and statistical data from businesses and provides information and analyses for the public.

neurs in UA areas showed a positive consolidated financial result of EUR 2,3 billion, of which 85% was realized in UA Zagreb. In short, entrepreneurs headquartered in UA Zagreb have had the largest share in the Republic of Croatia, with the highest average net wage per employee, 14% above the average calculated monthly net salaries of employees on the level of the Republic of Croatia. Observed in the three-year period, in the area of UA Zagreb, the average salary was 6% higher, the number of employees 3%, and the number of businesses 15%, when compared with 2015 [16], [17]. Work productivity measured by the amount of income per employee in UA Zagreb in 2017 was 27,5% higher than the productivity of entrepreneurs at the level of Croatia, and, measured earnings per employee are also significantly the highest in UA Zagreb. The economy of UA Zagreb's total business was slightly above the Croatian entrepreneurs' economy as a whole. Figure 5 shows the trends of Croatian and the City of Zagreb's GDP, as well as the corresponding GDP per capita from 2000 to 2016. Croatian GDP in 2000 amounted to EUR 23,3 billion, While the GDP of the City of Zagreb was EUR 6,3 billion.

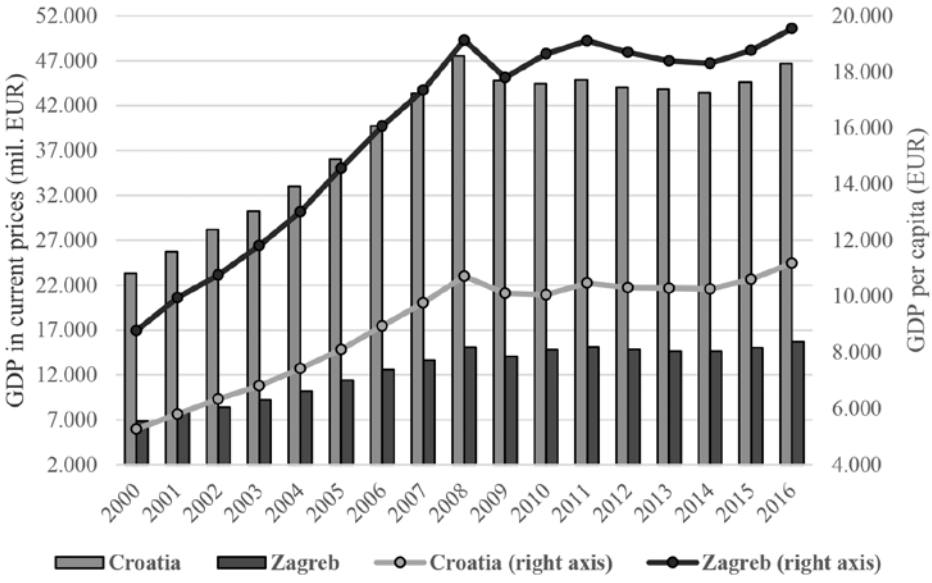


Figure 5: GDP and GDP per capita
Source: Author's work, based on Croatian Bureau of Statistics data.

Year	GDP (mil. EUR)		Share Zagreb in CRO, %	GDP per capita (EUR)		Index (CRO = 100)
	Zagreb	Croatia		Zagreb	Croatia	
2010	15.334	45.173	33,9	19.445	10.514	184,9
2011	15.117	44.854	33,7	19.117	10.473	182,5
2012	14.831	44.008	33,7	18.702	10.309	181,4
2013	14.627	43.808	33,4	18.388	10.297	178,6
2014	14.614	43.456	33,6	18.303	10.259	178,4
2015	15.028	44.630	33,7	18.769	10.606	177,0
2016	15.685	46.664	33,6	19.546	11.184	174,8

Table 3: Comparison of GDP and GDP per capita from 2010 to 2016
Source: Author's work, based on Croatian Bureau of Statistics data.

In 2016, the Croatian GDP was at EUR 46,7 billion, and that of the City of Zagreb was EUR 15,7 billion, and the share of the City of Zagreb in GDP grew from about 30% at the beginning of the millennium to 33,6% in 2016. GDP per capita in Croatia in 2016 increased by 112% in com-

parison to the GDP of 2000, and GDP per capita of the City of Zagreb increased by 123%. In the observed period, the biggest difference in GDP per capita was recorded in 2010, when GDP per capita in the City of Zagreb was 85% higher than Croatia's GDP, but, since then, this difference has decreased. *Ergo*, the convergence of the GDP per capita indicators is predominantly determined by the decrease of the Croatian denominator, i.e. the number of inhabitants, and not by the growth of the numerator (GDP). This is evident from Table 3, which shows the shares of GDP and GDP per capita of the City of Zagreb relative to that of the Republic of Croatia.

4. DISCUSSION

In professional and political public discussions, it may be heard that the importance of the City of Zagreb is "too big" and implicitly implies "injustice" in the distribution of economic and other benefits in Croatia. The attractiveness of moving into, and doing business in Zagreb is thus placed in the context of the "rent" that Zagreb enjoys as the capital city, further justifying the equalization of the development of the weaker parts of the country in relation to the better developed ones, through the pattern of a distribution of income tax revenue.[11] Income tax is the key tax revenue of Croatian local and regional self-government, as well as of the City of Zagreb, where income taxation constitutes ¾ of the revenue. Over the past 25 years, the financing models, i.e. the (re)allocations have been changed/supplemented more than ten times, and each time in order to be "simpler" and "fairer". The latest model, which has been in use since 2018, is more transparent in calculating the share of local units in the total amount of fiscal equalization funds. However, its key disadvantage is the detachment from Croatia's demographic reality, as the capacity of the per capita income tax revenue and the reference value and the optimal amount of fiscal equalization (per unit) are calculated on the basis of the number and structure of the last census, in 2011.

All policies, measures, programs, projects, and activities of the City of Zagreb are almost exclusively funded from the city budget, in which three quarters of revenue are made up of the income tax and the surtax, and in 2017 it was executed with revenues and receipts of HRK 8.72 billion, while the realized expenditures and expenses were in the amount of HRK 9.17 billion (approximately EUR 1.2 billion). Although this may seem nominally big to the Croatian public and politicians, it is less than 7% of state budget expenditures, and it should be emphasized that these expenditures include all the expenses of state administration jobs transferred to the city, which are neither refunded, nor co-financed from the state budget, by the central government, solely to the City of Zagreb.[12] Instead of Croatia, for example, following the example of Denmark, which has gradually (during fifty years) reduced the number of local government units from 1.300 to 98, Croatia has increased their number from 487 in 1993 to the current 576.[13] Without going into the reasons for maintaining the existing nano-fragmentation of local self-government, we can only point out the financial consequences of these long-term "gymnastics" of national politics on the financing models of the City of Zagreb.

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11 See e.g. the statement of the President of the Association of Cities in [18].

12 For example, approximately twenty state administration offices in other counties were financed from the state budget in 2017 in the amount of HRK 304 million.

13 In the Republic of Croatia, a total of 555 units of local self-government (428 municipalities and 127 cities) and 20 regional self-governments (counties) are established. The City of Zagreb, as the capital of the Republic of Croatia, has a special status of a city and county. Overall, the Republic of Croatia has 576 units of local and regional self-government.

According to the framework calculations of the City of Zagreb's Financial Office, Zagreb's realized tax revenues have, in the period 2015-2018, in comparison to 2014, been continuously lower for HRK 200 to 500 million per year, in a cumulative amount of HRK 1,5 billion (approximately EUR 200 million). While the average income tax revenue growth rate of the City of Zagreb in 2000/2006 was about 14%, for 2007/2016, the average growth rate of tax revenues was about 1%. The City of Zagreb faces the same problem noted by the Mayor of Rijeka, who pointed out that GDP and employment are growing with good result indicators of Rijeka's entrepreneurs, while the city's income tax revenues [19], due to the approach of the national fiscal policy to tax rates and the amount the of non-taxable part, have decreased. Sometimes, for financially self-sufficient cities, providing even relatively small domestic financial components for EU (co) financed projects thus becomes problematic, without even touching the state budget. After exhausting the alternatives of selling property and borrowing, balancing will have to be found in the context of cost reductions, which, for a City which wants and needs to develop, ultimately means extending the time horizon for the realization of development projects and/or increasing social insensitivity to the growing needs of its own citizens.

In social sciences, the rule is that often that which is valid in theory is no longer so unambiguous in practice. This, it seems, is the case with the phenomenon of fiscal decentralization from which, in theory, a higher level of economic efficiency and economic growth is expected, while empirical research in this context provides contradictory results and conclusions.[14] A standardized, conventional approach to the design and implementation does not exist because it is a complex process determined by the available (financial) resources and capacities on the one hand, and on the other, by the national and local territorial, political and administrative arrangements. If a thorough analysis and pragmatic thinking had been done before deciding, we would probably not have read in the Croatian press about the surprise at the Ministry of Finance after preliminary results of financial statements made it clear what the local authorities had spent the equalization funds on [20].

5. CONCLUSION

In the economic and demographic context, the share and "specific weight" of Zagreb are such that it can be said that, if Zagreb has a cold, Croatia has pneumonia. This is solely a consequence of weakness in other parts of the „organism", i.e. the country. Reducing regional differences between "stronger" and "weaker" in most countries is an objective of public interest. It is only ostensibly so if the economic and social convergence is realized at the cost of a lower national output. Changes in national tax policies, together with fiscal equalization, significantly impact Zagreb's tax revenues. While it makes sense to expect certain positive effects on national economic growth from income tax reliefs, Croatian decision-makers should thoroughly rethink the basic question: Does the equalization model serve its proclaimed goal, or does it create asymmetric incentive effects and support economic inefficiency?

[14] See e.g. [21] - [25].

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INTERNET MARKETING APPROACHES IN PROMOTION OF HIGHER EDUCATION INSTITUTIONS*

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Abstract: *Purpose of this paper is to analyze the perceived importance of Internet marketing in the higher education institutions in Croatia, exploring both the private and public sector. Two sectors of higher education institutions are compared with aim to explore their difference in recognizing the importance of Internet presence. Also, aim of this study was to explore undergoing marketing activities in those institutions. An empirical study on a sample of professors in public and private higher education institutions in Croatia has been conducted. The results of the empirical research confirmed that the differences are present between the two different types of higher education institutions in perception of its importance and usage of Internet marketing activities. Furthermore, paper presents the implications for decision-makers in higher education institutions.*

Key words: *marketing, Internet marketing, higher education institutions, promotion of higher education institutions.*

1. INTRODUCTION

Focus on Internet marketing is becoming an imperative with creating an integrated marketing communication of all organizations, including educational organizations. The fact is that target groups in higher education institutions (high school students, seniors, and college students) are the first ones to accept new technologies and implement them in their everyday lives. Target group has the need to make their communications networks thick and multi-layered [1] therefore they turn to online communication. Moreover, the Internet is the most important source of information while choosing a higher education institution [2]. Higher education institutions should follow trends and advertise themselves in a way that reaches their target groups. Although, Internet marketing is being used more and more in the educational sector, the knowledge of using it is not so widely spread [3].

While analyzing Internet marketing authors came to a disagreement in the terminology [4]. Most used terms are Internet, electronic, digital and interactive marketing, and differences between them are not significant enough to consider them as different concepts. The difference in e-marketing [5] entails the process of creating an offer, setting the price, distribution and promotion with an aim of satisfying buyer's needs exclusively on electronic market, and as part of online backup of classical offline marketing strategies. Whereas, e-marketing in a broader sense represents [6] a way to achieve marketing activities of the business subject with an intensive application of both informational and telecommunication (Internet) technology. E-marketing is also defined as marketing side of e-commerce [7], i.e. effort of a business subject to inform, advertise and sell his products and services on the

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Internet. For some authors [8] Internet marketing refers to a web that is used for posting webpages or activities connected with branding. However, the biggest challenge [7] is to come up with a concept that is attractive and interesting enough in order to attract visitors [9]. Primary goal of web pages of educational institutions is making sure that potential students have all the necessary information [3].

From the aforementioned, the purpose of the article is to analyze if teachers think that their higher education institutions (hereinafter HEI) in Croatia differently perceive the importance of Internet marketing and if those differences are visible in promotions conducted online. The research is focused on teachers, because even though they do not create marketing communication, they are one of the key components of 7P elements of marketing mix of HEIs [10] and as such they represent the connection between HEI with students and society as a whole. Their role is to satisfy its users (students) and on the other side to fulfil the aims of management [11]. Teachers communicate with their students and listen to their needs; therefore, their perception is even more important in evaluating communications achievements of HEIs. Moreover, in regards to growth of the private sector of HEIs [12] the goal is to explore the difference in using Internet marketing in public and private HEIs in Croatia, as well as accepting and implementing new technologies in marketing.

2. LITERATURE OVERVIEW AND RESEARCH PROBLEM

2.1. Characteristics of Internet marketing and higher education institutions web pages

The advantages of using Internet marketing are of the utmost importance [14]. Benefits are connected with interactivity, the possibility of measuring and tracking results [17], better targeting of potential and current clients, and the biggest advantage must be the possibility of two-way communication [15]. The consumer himself decides when to instigate the process of two-way communication. On the other hand, the use of Internet marketing represents a challenge for creators of virtual communications [16] because the need to create content that is more active and visible and which gives the optimal amount of valuable information.

Internet marketing in education encompasses the use of communication tools in the Internet world, as well as use of various tools for promotion of the educational institution on the Internet. The first step in Internet marketing is creating the web pages, which is usually compared with Internet marketing. The importance of web headquarters is that they are the main source of information when choosing a HEI. Furthermore, as much as 61% of information about HEI is collected over the Internet [9], while the rest is divided on brochures (19,5%), high school colleagues (7,8%), and 5% of the information is gathered through various presentations, visits to higher education institutions, word of mouth from high school teachers and parents. Web pages, with other tools of e-marketing are important because they represent the backbone of creating the image of a HEI [18]. When we look at the difference in quality of web pages of public and private HEI, there really aren't any [19]. However, different HEI (public and private) use Internet marketing differently [3]. In general, a large number of HEIs need to introduce improvements in regards of navigating the web pages, usability, adjustability and safety [20].

More and more used tool in Internet marketing are social media. However, research shows a difference in perception of their influence depends if social media is looked from the perspective of a teacher or a student. Also, most teachers believe that social media in HEIs should be exclusively used as a private tool of communication, whereas the students think that such communication is necessary and expected [21].

2.2. Difference between public and private higher education institution

The research which defines the difference between public and private HEIs is different. Differences are perceived [22] scholarship, educational diversity, class size and demographic characteristics of students. A different source [23] also emphasizes the fact that students on private HEIs will have easier access to different information, while on public HEI students who are independent will enjoy the freedom and variety of environment. Authors [24] claim that minimal differences in quality of the educational cycle, depending on whether the student is from public or private HEI, are non-existent by their third year. Furthermore, some authors claim that in quality private HEIs surpass the public ones ([25]-[24], [26]-[24]), but there are also opposing attitudes [27]. Although, private HEIs are more agile and are quicker to respond to business demands, and they give a safer opportunity of employment to their students [24]. Furthermore, certain authors [28]-[30] and [29]-[30] prove that public HEIs invest more in classrooms and libraries, while private HEIs invest in various electronic equipment and computers. In context of this article, a question arises; do private higher education institutions put greater effort in Internet marketing?

2.3. Research hypothesis

Every HEI should analyze their market influence and in accordance adjust their integrated marketing communication, in order to administer contemporary trends in their business and to give the best possible response to their competition. Changes in choosing promotional tools appear as a consequence of the dynamic market environment and contemporary technological achievements. Since potential students mostly rely on web pages as a source of information when choosing a HEI [9], it is clear why educational organizations should go in step with time and implement online marketing in their communications network. Also, since there are differences between the way of functioning public and private HEI [30], it is considered that there are differences in the way they are implementing Internet marketing. Teachers are important participants in the way of implementing Internet marketing, and they in particular represent the connection between students and management of HEI [10]. The importance of teachers in the process of creating the marketing strategy is remarkable [31]. Therefore, it is important to analyze their perception about Internet marketing activities as well as importance of Internet marketing and their institutions, and their perception how their institutions are using Internet marketing in promotion of their HEIs.

Taking into account all previously mentioned, in this article the following hypothesis is represented:

H1: Public and private HEIs in Croatia differently perceive the role and importance of Internet marketing in institution promotion.

H2: Public and private HEIs in Croatia use Internet marketing activities differently while promoting themselves.

3. METHODOLOGY

3.1. Instruments of research and the procedure

As the main instrument for collecting the primary data in this research is a survey. Research survey was created based on the theoretical part of research. Survey contained questions divided into two basic groups that contain attitudes of teachers towards the importance of Internet marketing in HEIs (1) and questions that encompass the choosing of Internet marketing tools

(2). Questions are composed based on previous research (1) [3] and [18]. Participants expressed their attitudes using 5-point Likert's scale where 1- completely agree and 5 completely disagree. Questions with (2) the possibility of choosing Internet marketing tool are adapted to a list available in [17]. Survey was made on online platform Limesurvey. It was forwarded to teachers of public and private higher education institutions of business content in Croatia, whose email addresses, were publicly available. Statistical methods which were used for processing of data are descriptive statistics, correlation analysis, T-test and $\chi 2$ test. For analysis SPSS programme package for Windows 22 was used.

3.2. Sample

Research was conducted on a sample of 104 participants - teachers of HEIs in Croatia. Teachers were chosen as a pattern because there is different research that imply that either the teachers are resisting to changes brought on by Internet marketing [31], or that the teachers are [32] perceived, by other teachers, parents and students, as being the first in line in using Internet marketing tools. From 104 participants, 82 of them fully completed the survey, while 22 only partially completed the survey. From the total number of valid answers, it is evident that more teachers from public HEIs participated in the survey (69,1%). Teachers from public HEIs were significantly more open in sharing information and supporting the survey. Difference in this two types of institutions lies in multiple facts, from different way of registering, the size of the HEI, demographic characteristics of the students [22], and in the way they communicate because not being forthright in sharing information stems from the characteristics of the private sector [33]-[36] where managers and entrepreneurs in private sector rarely share information.

4. RESEARCH RESULTS

4.1. Research results connected to role of perception and the importance of Internet marketing in promotion of the higher education institutions

In order to approach the analysis of the hypothesis, firstly we analyzed the attitudes of teachers towards the importance of Internet marketing in promotion of HEI. When looking at the collective level, that encompasses both public and private HEIs, we can conclude that the greatest number of participants (88.46%) believe that being present on the Internet in important for managing a HEI. Using $\chi 2$ test ($\chi 2 = 0.674$, $p > 0.05$), we conclude that there is no statistically noticeable difference between the attitudes of participants towards Internet presence and creating Internet marketing depending on f the participants come from a public or a private HEI.

Furthermore, we analyzed the importance of Internet presence. When we analyze the answers in more detail, depending on whether the teachers graded the importance of presence on the Internet and creating marketing activities, in table 1 we can see that there is a difference of the average value, depending on whether the teachers work in private(= 4.59) or public (= 4.23) HEI. The difference was also tested with t-test. The results show that ($t= -2.203$, $p<0.05$) there is a difference in the perception between the perception of teachers from public and private HEIs, on the importance of being present and Internet marketing promotion of HEIs where they are employed.

Type of HEI	N	Average value	Standard deviation
Public HEI	65	4.23	0.806
Private HEI	29	4.59	0.682

Table 1: Descriptive analysis of teacher's estimate of Internet presence and the importance of Internet marketing activity depending on the type of HEI (private and public)

In the next table (table 2) teachers' individual answers were analyzed in relationship with the role of Internet marketing in education, depending on the type of the HEI, from which we can conclude that teachers from private HEIs put more emphasis on enrolling students while, teachers from public HEIs put more emphasis on providing information. However, the result of $\chi 2$ test imply da there is no statistically important difference in the role of Internet marketing depending on the type of HEI ($\chi 2 = 2.227$, $p>0.05$).

Type of HEI	Give basic information	Create positive sentiment	Create 'desire' in users	Inspire to enroll	Miscellaneous	Total
Public HEI	11 (16.9%)	6 (9.2%)	20 (30.8%)	26 (40%)	2 (3.1%)	65 (100%)
Private HEI	2 (6.9%)	2 (6.9%)	9 (31%)	15 (51.7%)	1 (3.5%)	29 (100%)
Total	13	8	29	41	3	94

Table 2: Attitudes of teachers towards the role of Internet marketing activities in higher education; comparison of teachers from private and public HEIs

In the analysis, we looked for a connection with everyday use of technology by the teachers and their perception of the importance of Internet marketing. Teachers were asked if they consider contemporary technologies important in everyday life (Internet, mobile apps, and social networks). By analyzing all of the above we can conclude that the most of the participants from the private (= 4.61) and public (= 4.67) sector considers contemporary technology to be very important in everyday life. Additional analysis made with t-test confirmed that the difference is statistically not significant ($p=0.611$), i.e. the participants answers from both public and private HEIs don't differ.

Based on the aforementioned, we can conclude that the Hypothesis H1: Public and private HEIs u Croatia differently sees the role and importance of Internet marketing in institution promotion, is accepted.

4.2. Research results connected with using Internet marketing activity in promoting higher education institution

In the next analysis we paid attention to ways of using Internet marketing for HEIs promotions. Firstly, we analyzed tools of digital presence that the teachers pointed out that their HEI uses. How teachers point activities their HEI uses in promotion is provided in Table 3.

$\chi 2$ test analysis revealed that there is no statistically significant difference in perception of the teachers both public and private HEIs in regards to web page ($\chi 2 =0.009$, $p>0.05$), social networks ($\chi 2 = 0.097$, $p>0.05$) i metrics (tracking results) ($\chi 2 =2.211$, $p>0.05$) as an important tool of digital presence.

			Type of HEI	
Answer	Number	Percentage	Public HEI	Private HEI
Web page	91	87.50%	63	28
Social network	66	63.46%	45	21
Promotion through Internet	53	50.96%	27	26
Content management	31	29.81%	17	14
Metrics (tracking results)	26	25.00%	15	11
Mobile tools	17	16.35%	7	10

Table 3: Digital presence tools on HEIs

When we look at the attitudes of teachers towards mobile applications as significant tools for achieving digital presence, we can conclude that a greater number of participants from private (34.48%), than those from public (10.77%) HEIs are more inclined to think that their HEI uses the tools necessary to achieve Internet presence. We can conclude, from the results of the analysis through $\chi 2$ test ($\chi 2 = 7.612$, $p<0.05$) of the answers provided, that there is a statistically important difference in attitudes of teachers from public and private HEIs. From a more detailed analysis of the promotions as a tool of digital presence, we can see that there is significantly greater percentage of participants of private HEIs that consider these tools to be important (89.66%), moreover the difference between private and public HEIs is even more visible by the results from the $\chi 2$ test ($\chi 2 = 18.879$, $p<0.05$). When we analyze ‚content management' as a tool of digital presence a greater percentage of the participants from private HEIs (48.28%) these tools list as important. On the other side, only 26.15% of participants from public HEIs consider it important. Among the answers there is a statistically important difference in $\chi 2$ test ($\chi 2 = 4.440$, $p<0.05$).

When we analyze the attitudes of participants towards investment into Internet presence and attracting potential students over the Internet, we can conclude that the biggest percentage of participants (42.05%) believes that HEIs where they work, emphasizes Internet presence.

Comparison of the type of HEIs and the activities of attracting potential students through the Internet is shown in Table 4. The difference in response from participants from public and private sector of the effort that HEI put into being present on the Internet ($\chi 2 = 22.590$, $p<0.05$).

Type of HEI	**Doesn't put any effort**	**Mostly doesn't put any effort**	**Neither does or doesn't put any effort**	**Mostly puts in effort**	**Puts in a lot of effort**	Total
Public HEI	2 (3.4%)	16 (27.11%)	16 (27.11%)	23 (38.98%)	2 (3.4%)	59 (100%)
Private HEI	2 (7.14%)	1 (3.58%)	2 (7.14%)	14 (50%)	9 (32.14%)	28 (100%)
Total	4 (4.60%)	17 (19.54%)	18 (20.69%)	37 (42.53%)	11 (12.64%)	87 (100%)

Table 4: Analysis of the type of HEI in regards to efforts put into Internet presence and attracting potential students over the Internet

Respondents also allocated budget for marketing activities for their HEIs and the most respondents said that web page is dominantly used for promotion (78.85% of the budget), followed with investing into advertising on social networks (37.5%), advertising with banners (23.08%), Google Campaigns (16.35%) and smallest amount of promotional budget goes to app develop-

ing (10.58%) and mobile advertising (8.65%). Furthermore, we looked at the type of the higher education institutions and Internet marketing activities which is conducted by HEI (table 5).

Based on $\chi 2$ test there is a statistically significant difference between public and private HEI in using the next Internet marketing activities: Google campaign ($\chi 2 = 20.246$, $p<0.05$), advertisement via banners-displays ($\chi 2 = 35.266$, $p<0.05$), social networks advertisement ($\chi 2 = 16.521$, $p<0.05$), mobile advertisement ($\chi 2 = 15.715$, $p<0.05$).

Type of HEI	**Internet marketing activities**		**Tools for enrichment of content web headquarters which are used by HEI**		**Total**
	No	Yes	No	Yes	
	Web site maintenance		Blog		
Public HEI	13.84%	86.16%	95.39%	4.61%	65 (100%)
Private HEI	10.35%	89.65%	75.86%	24.14%	29 (100%)
	Google campaign		Newsletter		
Public HEI	93.85%	6.15%	86.15%	13.85%	65 (100%)
Private HEI	55.17%	44.83%	55.17%	44.83%	29 (100%)
	Advertising via banners- display		Web magazines		
Public HEI	92.31%	7.69%	96.92%	3.08%	65 (100%)
Private HEI	34.48%	65.52%	86.21%	13.79%	29 (100%)
	Social networks ads		iPad magazines		
Public HEI	72.31%	27.69%	98.46%	1.54%	65 (100%)
Private HEI	27.59%	72.41%	96.55%	3.45%	29 (100%)
	Mobile advertising		Video		
Public HEI	98.46%	1.54%	81.54%	18.46%	65 (100%)
Private HEI	72.41%	27.9%	44.83%	55.17%	29 (100%)
	Application development		e-manuals		
Public HEI	90.77%	9.23%	64.62%	35.38%	65 (100%)
Private HEI	82.76%	17.24%	72.41%	27.59%	29 (100%)
			Research and presentation		
			72.31%	27.69%	65 (100%)
			58.62%	41.38%	29 (100%)
			Audio podcast (digital audio file)		
			95.39%	4.61%	65 (100%)
			86.21%	13.79%	29 (100%)

Table 5: Relation between the type of HEI and investment into different marketing activities and using tools for enrichment of web headquarters content

Participants from private HEI stated that their HEIs put greater effort into implementing the aforementioned Internet marketing activities, than those from public HEIs. Tools that are used for enrichment of web pages content were also analyzed. While studying the results in Table 5, the most used tools are videos and newsletters as well as research and presentations. Based on $\chi 2$ test it can be concluded that there is a statistically significant difference between public and private HEI while using these tools for enrichment of content in a web pages: blog ($\chi 2 = 8.040$, $p<0.05$), newsletter ($\chi 2 = 10.737$, $p<0.05$), video ($\chi 2 = 12.922$, $p<0.05$). Participants from private HEIs in a greater extent stated that they are familiar with the aforementioned tools for web pages content enrichment when compared to answers given by the participants from public HEIs. With other tools, statistically significant differences were not established between answers given by the public and private HEI, or they are not represented e.g. web magazine and iPad magazine.

Furthermore, the use of tools for Internet promotions was also analyzed. By analyzing each of the mentioned tools for Internet promotion, we can conclude (Table 6) that there is a significant statistical difference between public and private HEIs.

Type of HEI	**Internet promotion tools HEI**		**Total**
	No	Yes	
	Display advertising– banner		
Public HEI	84.62%	15.38%	65 (100%)
Private HEI	34.84%	65.16%	29 (100%)
	SEM (Search Engine Marketing)		
Public HEI	89.23%	10.77%	65 (100%)
Private HEI	48.28%	51.27%	29 (100%)
	Contextual Advertising		
Public HEI	89.23%	10.77%	65 (100%)
Private HEI	68.97%	31.03%	29 (100%)
	Native Advertising		
Public HEI	93.85%	6.15%	65 (100%)
Private HEI	65.52%	34.48%	29 (100%)
	Remarketing		
Public HEI	100%	0%	65 (100%)
Private HEI	65.52%	34.48%	29 (100%)

Table 6: Relation between the type of HEI and using tools for Internet promotion

Based on $\chi 2$ analysis it is concluded that there is a statistically significant difference between public and private HEI in using Internet promotion tools: Display advertising – advertising through banners, texts, pictures, video… ($\chi 2 = 23.625$, $p<0.05$), SEM-a (Search Engine Marketing) – advertising through key words ($\chi 2 = 18.763$, $p<0.05$), contextual advertising – buying key words on certain web pages and portals ($\chi 2 = 5.831$, $p<0.05$), native advertising – paid advertisement like they are a part of the platform where they are shown ($\chi 2 = 12.696$, $p<0.05$), Remarketing – keeps track of user behavior, shows the ad on other web pages ($\chi 2 = 25.082$, $p<0.05$). Participants from private HEIs stated in a greater extent that they are familiar with the aforementioned tools of Internet promotion, when compared to the answers from participants from public HEIs. Based on previously conducted analysis Hypothesis H2: Public and private HEIs in Croatia use Internet marketing activities differently while promoting HEIs is accepted.

5. CONCLUSION

Marketing principles that are valid in higher education sector don't differ from classic marketing principles of business world [34]. When discussing a particularly competitive market of higher education [35], educational institutions are made to pay attention to changes and react to them with their own marketing activities. Conducted research points out that the private and public sector of higher education differently reacts to change [36]. Furthermore, teachers from private and public HEIs view the role and importance of Internet marketing differently. Conducted research has several implications.

Firstly, web pages of a HEI have different role, depending on the type of the HEI. Teachers from private HEI identified ‚enrolment' as the main role of the web page, while the teachers from public HEIs as the main function of web pages pointed out ‚providing information'.

Secondly, it was established that public and private HEIs use different channels of Internet marketing in order to inform or attract potential and current students. Differences can be a motivation for change within public education institutions and an implication for making future marketing decisions with more activity towards investment into Internet marketing.

Thirdly, a difference in use of various tools depending on the type of the HEI was established. Furthermore, we came to a conclusion that teachers from private HEI consider that their higher education institution invests significantly more into being present on the Internet and attracting potential students via Internet. Moreover, the teachers from private HEIs state that Internet marketing of a HEI is more important, which corresponds to larger investments that private HEIs make (advertising on social networks, advertising with displays - banners, Google campaigns, app development, mobile advertising). All the aforementioned indicates that public HEI investments with the aim of attracting students have to become more active in Internet marketing in order to be more attractive to potential students.

Limitations of the research conducted are choosing the pattern, since the survey was done with teachers, while other members of higher education are not taken into account. Because of that it is recommended that the future research include other members of higher education such as high school students, university students etc. Furthermore, a limitation was also a small pattern of participants from the area of higher education. A part of the teachers from private HEIs does not have their email address posted on web pages and there is no available email. The limitation is also the focus on HEIs in business. As a recommendation for future research is to include HEIs with different faculties and departments.

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OVERFUNDING IN CROWDFUNDING ON STARTNEXT AND KICKSTARTER PLATFORMS – ARE PRODUCT OFFERINGS MORE SUCCESSFUL THAN OTHER PROJECTS?

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Abstract: *This study provides a first overview of the impact of offering a product besides other characteristics on project overfunding on two large platforms Startnext and Kickstarter based on 4,303 successfully overfunded European projects in the time between 2013 and 2015. In general, the level of overfunding in median equals to 10% on Startnext and 22% on Kickstarter, but varies to a high degree, depending on the industry category, as indicated by the mean of 55% on Startnext and 257% on Kickstarter. Results from regression analysis show that launching a product is significantly increasing the level of overfunding only for some categories of campaigns and in different ways on the two platforms. For Startnext and Kickstarter a comparably strong and medium effect of product offerings on the level of overfunding is only observable for projects from the Technology and Fashion category, respectively. Thus, the comparison reveals important differences which might be potentially interesting for investors, SMEs, founders and their advisors. Future research should focus on larger samples of successful and unsuccessful projects in order to provide more precise results.*

Keywords: *Crowd, Overfunding, Product, Startnext, Kickstarter.*

1 INTRODUCTION

Compared to other more traditional ways of financing, crowdfunding is a possibility to get funds cheaper, because founders are able to address a vast public and, therefore, find backers with highest interest in the product or reward. Furthermore, many creators are interested in direct feedback from customers on their products allowing for optimal product development early on. Moreover, founders are enhanced to link their project with their social media accounts which will provide them with feedback from a larger audience [1]. This way crowdfunding provides a pretest for the sell ability of products before going to the market. Founders of European projects containing product offerings, however, often do not know which platform to choose for their projects to succeed [2].

This study provides a first overview of the impact of product offerings on the level of overfunding for 4303 European projects successfully funded by crowds on the platforms Startnext and Kickstarter in the time between 2013 and 2015. Overfunding describes the amount of additional funding founders can use beyond the prespecified funding goal of the project. The goal of this research is to offer general and industry specific information together with clear recommendations for founders on which platform to choose for their product offerings to obtain the highest possible amount of money. A high level of overfunding identified for a particular platform, can be potentially interesting for founders having innovative ideas and looking for much more money faster as planned. Overfunding can be also highly beneficial in terms of increased product

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publicity or higher products sales [3]. Crowdfunding platforms are intermediaries in two-sided markets bringing together project founders searching for funding and funders willing to provide money [4].

For the purposes of this study a sample of 4,303 successfully funded European projects (hand-collected) is used. In particular, the information on the following variables is collected: project category (i.e. Art, Technology etc.), initial funding goal, funding, funding period (start and end) and whether a product was offered as opposed to gifts or no rewards in a campaign.

Although some publications refer to overfunding as a phenomenon of crowdfunding (Malave [5]; Mollick [6]; Barbi and Bigelli, [7]; Gabison [8]; Frydrych et al. [9]), still many questions remain unanswered [10]. A growing body of literature focuses on drivers of success determining the level of funding, e.g. Gerber et al. [11], Malave [12], Frydrych et al. [13], Haas et al. [14], Mollick [15] and Kuo [16]. For instance, Koch relates project overfunding primarily to campaign characteristics, project information disclosure, founder-related, and platform-related aspects as well as funding behaviors [17]. This study adds to the growing body of literature on drivers of success determining the level of funding, but addresses the topic with a product centered approach applied to samples stemming from two important platforms. The comparison reveals important differences which might be potentially interesting for investors, SMEs, founders and their advisors.

The rest of the paper proceeds as follows. Section 2 presents the data, while section 3 Section shows the results of the analysis of European projects' key characteristics with the associated implications for project founders. Section 4 concludes the paper.

2. DATA AND METHODOLOGY

This study focuses on the overfunding of over 4,303 European projects successfully funded by crowds on the platforms Startnext and Kickstarter in the time between 2013 and 2015. The hand-collected sample from Startnext contains 1,115 records, while the dataset from Kickstarter contains 3,188 records belonging to categories that both platforms have in common.

The funding goals and funding amounts of projects from Kickstarter platform are translated into Euro amounts by applying the respective average exchange rate in a year. Overfunding describes the amount of additional funding founders can use beyond the pre-specified funding goal of the project and is calculated by subtracting the funding goal amount from the finally obtained funding (overfundung = funding – funding goal).

For comparison purposes, 4,303 records from the following common 10 categories are used: Art, Comics, Design, Fashion, Games, Journalism, Music, Photography, Technology and Video. For the following Wilcoxson-rank-sum-tests, several independent project characteristics common for projects stemming from both platforms are identified: funding goal (in €), funding (in €), overfunding (in €), overfunding (in % of the initial funding goal), campaign duration (in days) and product offering versus gift or no reward (yes or no). **Table 1** presents a general overview of the data.

In general, the level of overfunding in median equals to 10 % on Startnext and 22% on Kickstarter, but varies to a high degree as indicated by the mean of 55% on Startnext and 257% on Kickstarter.

Platform / N	mean	p50	sd	min	max	Variable Name
Startnext						
1115	7 229,76	5 000,00	9 564,35	100,00	125 000,00	Funding Goal in EUR
1115	8 844,29	5 238,00	13 284,53	151,00	165 755,00	Funding in EUR
1115	1 614,54	420,00	6 683,22	0,00	149 755,00	Overfunding in EUR
1115	0,55	0,10	10,25	0,00	341,94	Overfunding in %
1115	8,41	8,52	1,00	4,61	11,74	Funding Goal in EUR (ln)
1115	8,59	8,56	0,98	5,02	12,02	Funding in EUR (ln)
1115	5,85	6,04	1,86	0,00	11,92	Overfunding in EUR (ln)
1115	49,44	45,00	21,11	4,00	120,00	Duration (in days)
1115	0,79	1,00	0,41	0,00	1,00	Product (yes or no)
Kickstarter						
3188	10 813,80	3 342,00	26 150,40	1,00	744 306,00	Funding Goal in EUR
3188	26 482,73	4 774,50	113 754,70	1,00	3 217 126,00	Funding in EUR
3188	15 668,93	614,00	100 604,90	0,00	3 044 912,00	Overfunding in EUR
3188	2,57	0,22	30,15	0,00	1 275,00	Overfunding in %
3188	7,94	8,11	1,84	0,00	13,52	Funding Goal in EUR (ln)
3188	8,44	8,47	1,88	0,00	14,98	Funding in EUR (ln)
3188	6,35	6,42	2,78	0,00	14,93	Overfunding in EUR (ln)
3188	31,32	30,00	10,18	2,00	74,00	Duration (in days)
3188	0,91	1,00	0,28	0,00	1,00	Product (yes or no)
Total						
4303	9 885,10	3 789,00	23 081,56	1,00	744 306,00	Funding Goal in EUR
4303	21 912,23	5 049,00	98 446,53	1,00	3 217 126,00	Funding in EUR
4303	12 027,13	520,00	86 876,77	0,00	3 044 912,00	Overfunding in EUR
4303	2,05	0,17	26,49	0,00	1 275,00	Overfunding in %
4303	8,06	8,24	1,68	0,00	13,52	Funding Goal in EUR (ln)
4303	8,48	8,53	1,69	0,00	14,98	Funding in EUR (ln)
4303	6,22	6,25	2,58	0,00	14,93	Overfunding in EUR (ln)
4303	36,01	30,00	15,98	2,00	120,00	Duration (in days)
4303	0,88	1,00	0,32	0,00	1,00	Product (yes or no)

Table 1: Startnext and Kickstarter Projects – A General Overview of the Sample

3. RESULTS

The tables 2 and 3 show the results of pre-tests consisting of an analysis of Pearson Rank Sum Correlations of various variables used in the study and of Wilcoxon Rank Sum Tests applied to them for each industry category separately. Next, a more in-depth regression analysis of the phenomenon follows.

Results from Wilcoxon rank-sum tests suggest that projects seem to significantly differ in terms of funding amounts, overfunding and length of campaign duration across the categories. **Table 2** shows that the level of funding and as a consequence of overfunding is significantly positively (on a 1% confidence level) and highly affected by the pre-specified funding goal of a particular campaign. Both are also significantly positively impacted by the introduction of product offerings as opposed to gifts or no rewards to a campaign. This table reports Pearson rank sum correlation coefficients, p-values and numbers of observations, while * indicates significance at the 1% level.

As further shown in **Table 3**, Wilcoxon-Rank-Sum-Tests confirm significant differences regarding the levels of overfunding and the impact of product offerings on both platforms in all categories except journalism. However, most of the time the effect of launching a product on overfunding is twice as high on Kickstarter as compared to Startnext.

	funding_eur	ln_funding_e	overfunding	ln_overfunding	funding_goal	ln_funding_goal	duration	product_dv
funding_eur	1							
	4303							
overfunding	0.9767*	0.3264*	1					
	0,0000	0,0000						
	4303	4303	4303					
ln_overfun~g	0.3727*	0.7546*	0.3162*	1				
	0,0000	0,0000	0,0000					
	4303	4303	4303	4303				
funding_goal	0.5890*	0.5548*	0.4018*	0.3997*	1			
	0,0000	0,0000	0,0000	0,0000				
	4303	4303	4303	4303	4303			
ln_funding_g	0.3098*	0.9249*	0.2062*	0.5526*	0.5449*	1		
	0,0000	0,0000	0,0000	0,0000	0,0000			
	4303	4303	4303	4303	4303	4303		
duration	0,0095	0.1386*	-0,0005	0,0165	0.0426*	0.1955*	1	
	0,5313	0,0000	0,9734	0,2778	0,0052	0,0000		
	4303	4303	4303	4303	4303	4303 4303	4303	
product_dv	0.0515*	0.1005*	0.0429*	0.1477*	0.0585*	0.0648*	-0.0489*	1
	0,0007	0,0000	0,0049	0,0000	0,0001	0,0000	0,0013	
	4303	4303	4303	4303	4303	4303	4303	4303

Table 2: Pearson Rank Sum Correlations

	Art.	Comics	Design	Fashion	Games	Journalism	Music	Photography	Technology	Video
funding_goal	0.0006	**0.3430**	0.0715	**0.7235**	**0.5222**	0.0009	0.0000	**0.4440**	**0.1546**	0.0000
funding_eur	0.0845	0.0218	0.0003	**0.2657**	0.0080	0.0018	0.0000	**0.8235**	0.0083	0.0000
overfunding	0.0001	0.0000	0.0000	0.0959	0.0008	**0.4316**	0.0000	0.0030	0.0002	0.0000
overfunding_proc	0.0000	0.0003	0.0000	0.0427	0.0023	0.0946	**0.8483**	0.0000	0.0001	0.0609
duration	0.0000	**0.1674**	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
product	0.0000	0.0070	0.0000	0.1728	n/a	**0.6040**	0.0356	0.0000	**0.3981**	0.0000

Table 3: Results (p-values) of Wilcoxon-rank-sum Tests Applied to Projects from Individual Industry Categories of Kickstarter and Startnext Platforms

In the following, Ordinary Least Squares (OLS) Regressions of various project characteristics on the level of project overfunding are performed in order to gain more precise insights.

As shown in **Table 4**, columns (1)-(3) product offerings seem to impact the level of project overfunding to a relatively high degree. However, according to **Table 4**, column (4) compared to column (5) this effect seems to be driven by Kickstarter campaigns only. The next analysis step should provide a more differentiated picture of the impact of product offerings on overfunding for projects stemming from various industry categories on both platforms.

In comparison to **Table 4**, one can observe in **Table 5** that after including industry variables the effect of product offerings on the level of overfunding disappears in columns (1)-(3), but reappears once interaction terms consisting of product offerings and industry category dummies are included in columns (4)-(6). This makes sense as product offerings may have a different impact in different categories and this effect might be also different across the two analyzed platforms.

	(1) Ln_overfun	(2) Ln_overfun	(3) Ln_overfun	(4) Ln_overfun	(5) Ln_overfun
	All	All	All	Kickstarter	Startnext
Ln_funding_goal (in EUR)	0.8672***	0.8742***	0.8702***	0.8930***	0.6676***
Duration	-0.0143**	-0.0045*	-0,0041	-0,0082	0,0004
Product_dv	0.8515**	0.6993**	0.9309**	0.9131**	0,3810
Startnext_dv		-0.7420**	-0,2942		
Product*Startnext			-0,539		
Constant	-1.0039*	-1.0882**	-1.2804**	-1.3165	-0,0833
Std. er. clustering on industry level	Yes	Yes	Yes	Yes	Yes
N	4303	4303	4303	3188	1115
R-squared	0,3254	0,337	0,3381	0,3662	0,1367
Adj. R-squared	0,325	0,3364	0,3373	0,3656	0,1343

Table 4: Product Offerings and Project Overfunding in General

This table reports the results of OLS regressions of various project characteristics on the level of project overfunding (ln_overfun). As compared to columns (1)-(3), columns (4)-(5) separately focus on the Kickstarter and Startnext project campaigns. Standard errors are clustered at the industry category level. *,**,*** indicate significance at the 10, 5, and 1% level, respectively.

This table reports the results of OLS regressions of various project characteristics on the level of project overfunding (ln_overfun) excluding and including interaction terms consisting of product offerings and industry category dummy variables (the omitted category – baseline – is journalism). As compared to columns (1)-(3), columns (4)-(6) contain additional interaction terms. Standard errors are clustered at the industry category level. *,**,*** indicate significance at the 10, 5, and 1% level, respectively.

As shown in column (5) of **Table 5**, for Kickstarter an effect of product offerings on the level of overfunding is observable in various categories. A statistically significantly positive and economically high effect is identifiable for the Design, Photography and Technology categories where a product-driven increase in project overfunding of 653 EUR to 1646 EUR is observable. Moreover, a significant and economically medium high impact of product offerings is identifiable for project in the Fashion (ca. 285 EUR) and Comics (ca. 110 EUR) category, while a significant negligible positive and negative effect (< 50 EUR) shows up in the Video and Art category, respectively.

Table 5, column (6) shows for Startnext projects from the Technology category a significantly positive and economically high effect of product offering on the level of overfunding where a product-driven increase in overfunding of 1868 EUR is observable. Furthermore, a significant and economically medium high impact of product offerings is identifiable for project in the Fashion (ca. 285 EUR) category, while significant negligible effects (< 50 EUR) manifest for projects from Art, Comics, Music categories (positively) and Design, Photography and Video categories (negatively).

In sum, product offerings in Technology and Fashion related campaigns show a similar strong and medium effect, respectively, on both platforms. Based on these differences between Startnext and Kickstarter, founders can decide for an appropriate product placement and prepare budgets accordingly including the possibility to reach much more money faster as planned. However, a high level of overfunding might signal to funders potential delivery problems because of a high demand for a promised product.

Variable	(1) Ln_overfun	(2) Ln_overfun	(3) Ln_overfun	(4) Ln_overfun	(5) Ln_overfun	(6) Ln_overfun
	All	Kickstarter	Startnext	All	Kickstarter	Startnext
Ln_funding_goal (in EUR)	0.7633***	0.7638***	0.5633***	0.7568***	0.7556***	0.5447***
Duration	-0,0029	-0,0056	-0,0008	-0,003	-0,005	-0,001
Product_dv	0.6248*	0,6024	-0,0006	0.5777**	0.2098***	1.0259***
Startnext_dv	-0,0118			-0,2532		
Product*Startnext	-0,4183			-0,1347		
Art Category_dv	-0.2757*	-0,1424	-1.0579***	-0.0736**	0.5026***	-0.6028***
Comics Category_dv	0.7077***	0.8198***	-0.2397**	0.4899***	0.4820***	0.1418*
Design Category_dv	1.1266***	1.4219***	0.3246***	0,2917	-0.5678***	0.9278***
Fashion Category_dv	0,134	0,1765	0,1312	-0.5941***	-0.7042***	-0.5778***
Games Category_dv	1.5621***	1.6307***	1.1733***	1.5471***	1.8247***	0.7292***
Music Category_dv	-0,075	-0.3989**	0.4027***	0.4824**	0,1498	0.8251***
Photography Category_dv	-0.4123***	-0,165	-0.8122***	-0.6020***	-1.7001***	-0.1111***
Technology Category_dv	1.3660***	1.4444***	0.3641**	-0.8657***	-0.9270***	-1.7989***
Video Category_dv	-0.3113***	-0.4688***	0,0572	0.2429***	-0.2741***	0.9737***
Product*Art Category				-0.2454*	-0.5268***	-0.8420***
Product*Comics Category				0,2329	0.5424***	-0.7582***
Product*Design Category				0.9107***	2.2454***	-1.0585***
Product*Fashion Category				0.7789***	1.1510***	0.3283***
Product*Games Category				(omitted)	(omitted)	(omitted)
Product*Music Category				-0.5982***	-0.3708***	-0.8585***
Product*Photography Category				0,2481	1.8273***	-1.2404***
Product*Technology Category				2.3235***	2.6650***	1.9577***
Product*Video Category				-0.8113***	-0.1453***	-1.5854***
Constant	-0,5893	-0,5069	1,077	-0,4715	-0,2575	0,664
Std. er. clustering on industry	Yes	Yes	Yes	Yes	Yes	Yes
N	4303	3188	1115	4303	3188	1115
R-squared	0,4028	0,4440	0,2035	0,4112	0,4528	0,2190
Adj. R-squared	0,4009	0,4419	0,1949	0,4082	0,4493	0,2047

Table 5: Product Offerings and Project Overfunding by Category

4. CONCLUSION

This study provides a first overview of the impact of offering a product besides other characteristics on project overfunding on two large platforms Startnext and Kickstarter based on 4,303 successfully overfunded European projects in the time between 2013 and 2015. The aim of this research is to offer general and industry specific recommendations for founders on which platform to choose for their projects to reach the highest possible funding. In general, the level of overfunding in median equals to 10% on Startnext and 22% on Kickstarter, but varies to a high degree, depending on the industry category, as indicated by the mean of 55% on Startnext and 257% on Kickstarter. Results from Wilcoxon-rank-sum tests suggest that in the categories art, design and video, projects significantly differ regarding all characteristic. In these categories the level of project overfunding is significantly higher on Kickstarter (up to 63%). Results from regression analysis show that launching a product is significantly increasing the level of overfunding only for some categories of campaigns and in different ways on the two platforms. For Startnext and Kickstarter a comparably strong and medium effect of product offerings on the level of overfunding is only observable for projects from the Technology and Fashion category, respectively. Thus, the comparison reveals important differences which might be potentially interesting for (inter-)nationally acting investors, SMEs, founders and their advisors. Future research should focus on larger samples of successful and unsuccessful projects in order to provide more precise results.

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IMPACT OF BANK LENDING ON DEVELOPMENT OF THE AGRICULTURAL SECTOR IN BULGARIA

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Abstract: *The aim of the article is to analyze the role of bank lending for the development of the agrarian sector and to assess the impact of subsidies on bank lending, on the example of Bulgaria. The survey period is 2007-2018 - after the country joined the European Union. The correlation between the bank credit and the production generated in the sector is analyzed. Data from the Bulgarian National Bank and the Ministry of Agriculture and Food of Bulgaria were used. There is a correlation between the bank credit for agriculture and the production produced in the sector. The importance of credit for agrarian development is increasing. Improvements in credit conditions for agricultural holdings are observed. Bank loans are analyzed by type and term. The relationship between bank lending and agricultural subsidies for various scale producers has been studied. Small farms are more likely to use subsidies to secure short-term loans, and large farms prefer long-term loans. Subsidies typically have a push-out effect on short-term loans for large farms and on long-term loans for small farms. There is a positive causal effect of subsidies on bank loans for the agrarian sector. Recommendations are proposed to improve access to credit for farmers as a prerequisite for sector growth.*

Keywords: *Financing of agriculture, crediting, agricultural credits, access to credit, subsidizing agriculture.*

1. INTRODUCTION

The credit for agriculture can be defined as the mobilization of resources at all levels in order to increase agricultural production and productivity and to increase production capacity. It appears to be an important source of financial resources for agribusinesses, secured by trust, pledge or warranty. The main source of financial resources in the short term is the bank loan for working capital necessary for the upgrading and maintenance of the reproduction process [8]. The credit relations related to the provision of long-term financing of agribusiness enterprises are directly related to the investments in basic funds. Investments in plant-growing, livestock, processing, and other events suggest the need for long-term lending. The shortage of credits is defined as a decisive factor determining the productivity of agricultural holdings and agrarian development [5].

Agricultural loans can have a positive effect on the growth of the agrarian sector, which is reflected in the welfare of the entire economy. The development of the agrarian sector is necessary in view of the need to supply food and guarantee the prices of agricultural commodities. Agriculture allows land to be used as an additional source of growth without competing with resources for industrial growth.

Agricultural loans are a factor for growth and address some of the productivity problems of the agricultural sector, especially for those whose development is based on agriculture [1, 12]. The role of financial capital as a factor of production and of economic growth implies the need to target credit to agrarian development and rural development. Currently, credit (capital) is seen

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as more than just another resource such as labour, land, equipment and raw materials [13]. In addition, credit determines access to all resources on which farmers depend [14]. However, given the lower productivity in agricultural production compared to other economic sectors, the requirements for agricultural credit in developed countries are higher [2]. Therefore, ensuring appropriate macroeconomic policies and facilitating institutional development funding of agriculture is able to facilitate the development of agriculture in order to increase the sector's contribution to income generation and employment.

Access to credit is the subject of research in many of the research [3, 5, 6, 9]. Access to credit for agricultural purposes is seen as a major incentive to increase the performance of the agricultural sector in the countries of Central and Eastern Europe. Significantly less attention is paid to the link between credit constraints and farm behaviour, for example, the choice of agricultural resources and productivity. This is explained by the lack of sufficient data and the complexity of agrarian credit markets [5].

Access to credit is linked to production capacity [12]. Farmers without sufficient financial resources for investment have little capacity to increase their production in the long run. This affects the distribution of agricultural resources and reduces productivity. Similarly, farmers who invest in improving their production and expanding their capacity achieve higher market positions, which increase their cash flow and improves their access to credit. The credit enables farmers to increase their capacity by investing in better production technologies. As intensive production is causing an increasing demand for agricultural machinery, the importance of long-term loans is increasing. In this way, producers who want to improve production efficiency align their methods and processes with practices that increase their production. They include investments that increase production, increase efficiency, save labour, and add value. Farmers employing more manual labour require more short-term capital to meet their hiring needs. Securing credits to improve the investment potential of farms improves innovation and is a factor for growth.

Farmers use long-term loans to finance their long-term investments that will bring them long-term income. Non-production subsidies have a similar effect to that of long-term credit, while coupled subsidies are more of a nature of short-term [4]. Subsidies received under the two pillars of the CAP are also important for the ability of farmers to receive long-term and short-term loans. Subsidies are a kind of credit guarantee that reduces the risk for banks from providing loans to farmers, which increases their incentive to lend to the agrarian sector. Expanding subsidies to European farmers has a knock-on effect on banks to credit agriculture [11].

Degree of development of financial markets is an important factor for the development of credit relations in agribusiness. The functioning of the credit market for agriculture is characterized by a higher degree of uncertainty due to the asymmetry of customer information [7], which creates certain constraints [2]. The ownership of agriculture, the diverse organizational structures and the different scales of farms have an impact on farm credit. Smaller, self-owned holdings have no obligation to publicly disclose their financial position. This makes it harder for the bank to assess the financial performance of the sector and more difficult to identify good investments. The credit history of the borrower plays a crucial role in granting credit. There are also moral hazards arising from the sole nature of ownership and sole control over the resources [7]. The creditor (bank) should properly assess the creditworthy motivators and the potential to generate future cash flows from the borrower. This leads to an increase in the credit risk in agriculture compared to other economic sectors. This creates risks of insufficient capitalization of the agrarian sector and raises the requirements for commercial banks to overcome insecurity in the

sector. Therefore, it is important for the bank to rely heavily on the borrowing farm holding and to properly assess its financial position through a credit rating or through sufficient collateral.

The primary role of agricultural credit in Bulgaria is determined by the risky nature of production, poorly functioning secondary financial markets of securities, problems with system stability [8, 10]. Agricultural financial markets are characterized by insufficient development, production risk, seasonal fluctuations in resource demand, lack of securitization, increased transaction costs, and so on. This defines the agricultural financial market as riskier and banks are wary of servicing farmers. An additional problem is the lower profitability of the sector. According to [10] the agricultural financial market in Bulgaria is insufficiently perfect.

The underlying purpose of the study is to analyze the role of bank lending for the development of the agrarian sector and to assess the impact of subsidies on bank lending, on the example of Bulgaria. Specific objectives are to study the relationship between agricultural credit and the productivity of the sector, study of the structure of agricultural loans, influence of credit development subsidies; to bring forward proposals for policy development and improvement of the agrarian credit market.

2. ECONOMIC RESULTS IN THE DEVELOPMENT OF THE AGRICULTURAL SECTOR OF BULGARIA

The presentation of the Bulgarian economy after 2007, when the country is a member of the European Union, shows sustainable growth. The index of GDP change in nominal value in 2018 compared to 2007 is 179.3%, with the average nominal growth rate being 5.45%. The economy is represented mainly by the services sector (68%), followed by the industry (28%) and the agrarian sector (around 4%). Although with a small share in value added in GDP, Bulgaria's agrarian sector has an important place in the country's economy. In the period 2007-2012, the share of the agrarian sector fluctuates between 4-6% to be around 4% at the end of the analyzed period. The dynamics of GDP and the share of the agrarian sector of Bulgaria in the period 2007-2018 is presented in Figure 1.

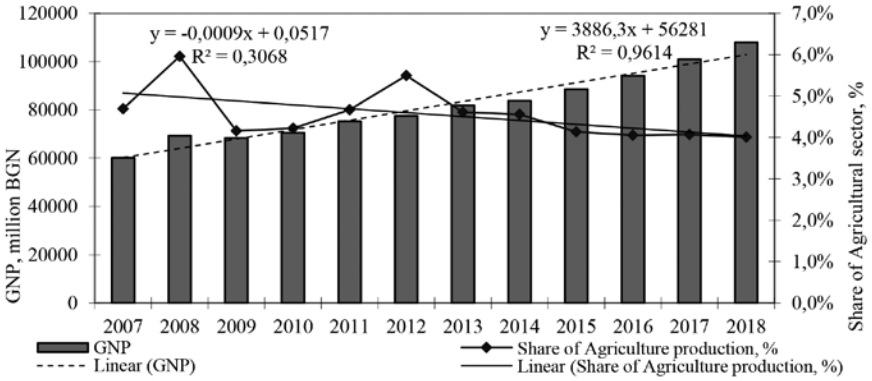

Figure 1: Dynamics of GDP and share of the agrarian sector in the economy in the period 2007-2018.
Source: National Statistical Institute, http://www.nsi.bg

According to the Ministry of Agriculture (Agricultural Report, 2018), the area of land for agricultural purposes is 5.2 million hectares (47% of the territory of the country), out of which the arable land is 3.5 million ha (69% of the used agricultural area). The orchards and vineyards

represent 2.7% of the utilized agricultural area and the permanent grassland is 27.7%. The registered agricultural producers are 93 thousand. In 2017, the gross agricultural production at current prices is BGN 9031 million; the perennial provides 68.3%, the livestock - 23.1%, the agricultural services 5.8% and other activities - 2.8%. Intermediate consumption used to produce end products in the sector is BGN 4479 million. Gross value added is BGN 3760 million. Net entrepreneurial income in the agricultural sector is BGN 3788 million.

The economic performance of the agrarian sector of Bulgaria for the period 2007-2016 shows contradictory results. The Farm Accountancy Data Network survey shows the following average for all holdings presented in Table 1. The number of observed holdings is decreasing, reflecting also the average figures for the financial development of farms. Gross farm output is increasing in 2016 compared to 2007 by 74.9%. The total fixed assets increase more than 2.1 times, due to the increased investment activity in the sector and the total amount of the assets on the farms increased more than 2 times.

Indicator	measure	2007	2008	2009	2010	2011
Farms represented	number	146770	146770	115490	115650	115650
Farm Net Income	BGN	11356	13203	10263	14348	15633
Total output	BGN	43475	52603	47837	58479	66599
Total Fixed Assets	BGN	50680	60514	69068	77532	76558
Total Assets	BGN	81973	94488	107428	111346	120720
Total Liabilities	BGN	14444	19189	21785	24669	36458
Total subsidies - excluding on investments	BGN	3378	6384	11788	12623	11003
Profitability of Total Output	%	26,1%	25,1%	21,5%	24,5%	23,5%
Profitability of Fixed Outputs	%	22,4%	21,8%	14,9%	18,5%	20,4%
Profitability of Total Assets	%	13,9%	14,0%	9,6%	12,9%	12,9%
Indicator	**measure**	**2012**	**2013**	**2014**	**2015**	**2016**
Farms represented	number	114420	113570	113750	114420	114400
Farm Net Income	BGN	16161	18193	18660	18341	13385
Total output	BGN	74015	81211	81519	76036	76038
Total Fixed Assets	BGN	73479	94179	110503	110237	106854
Total Assets	BGN	119709	151875	174454	169696	168105
Total Liabilities	BGN	27602	32993	43103	37369	39679
Total subsidies - excluding on investments	BGN	13581	19511	20057	20513	18440
Profitability of Total Output	%	21,8%	22,4%	22,9%	24,1%	17,6%
Profitability of Fixed Outputs	%	22,0%	19,3%	16,9%	16,6%	12,5%
Profitability of Total Assets	%	13,5%	12,0%	10,7%	10,8%	8,0%

Table 1: Economic performance of agricultural holdings in Bulgaria for the period 2007-2016. (average for all farms)
Source: Farm Accountancy Data Network, http://ec.europa.eu/agriculture/rica/

The rates of change in assets are higher than those of gross output, which leads to a reduction in the profitability of farms. Despite the large increase in assets and output, net farm income is growing at a slow pace. The average rate of change in net income on farms is only about 2%. This is also reflected in a reduction in the absolute amount of profitability. Profitability on a

gross basis in 2016 is 67.4% compared to 2007, the yield on fixed assets is 55.9%, and the return on total assets is 57.5%. The average profitability of revenue declines by about 4.3% per year and the average return on assets decreases by about 6% per year. The increase in assets is not due to improving production efficiency, but is due to increased indebtedness and production subsidies. The average indebtedness of farms over the period 2007-2016 increases by 2.75 times the subsidies increase 5.5 times. The increase in the level of indebtedness in the farm holdings is due to an increase in credit activity. The analysis of farm financial performance in the agricultural sector shows that reduced efficiency is offset by increased lending activity and increased subsidies under the Common Agricultural Policy.

Since 2007, lending has been an important source of financial resources for farm holdings. The number of loans granted annually to agricultural farms in Bulgaria has increased almost 2 times and the amount of loans extended more than 2.5 times. Sustained growth in lending to the agricultural sector is observed (Figure 2).

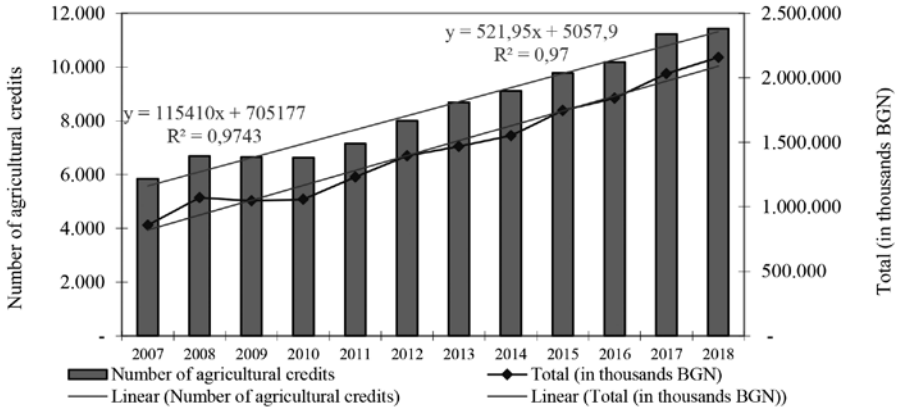

Figure 2: Dynamics of the number and amount of loans granted by commercial banks to the agrarian sector in the period 2007-2018.
Source: Bulgarian National Bank, http://www.bnb.bg/

According to BNB data, the relative share of agricultural credits in total lending for the period 2007-2018 is increasing. In 2018, the number of loans granted to agricultural holdings reached 7.7% of total loans to non-financial corporations (6.6% of total loans to non-financial corporations). In the total lending in the country, the share of agricultural loans is 0.4% of the total credit (3.9% of the total loans in the country). The data show sustainability in the development of agricultural credit after 2007 in Bulgaria.

The dependence between lending and the development of the agricultural sector in 2007-2018 is very strong. The correlation between the size of the agricultural credit and the GDP is strong. This is evidenced by the Pearson coefficient between the two - 0.8167, which determines a strong relationship between the categories. The analysis of the linear relationship between the amount of loans granted to agriculture and the share of gross value added of the sector in the economy shows a statistically significant relationship - the Pearson coefficient is 0.8687. The importance of agricultural credit for the development of the agrarian sector and the economy of Bulgaria as a whole is proven.

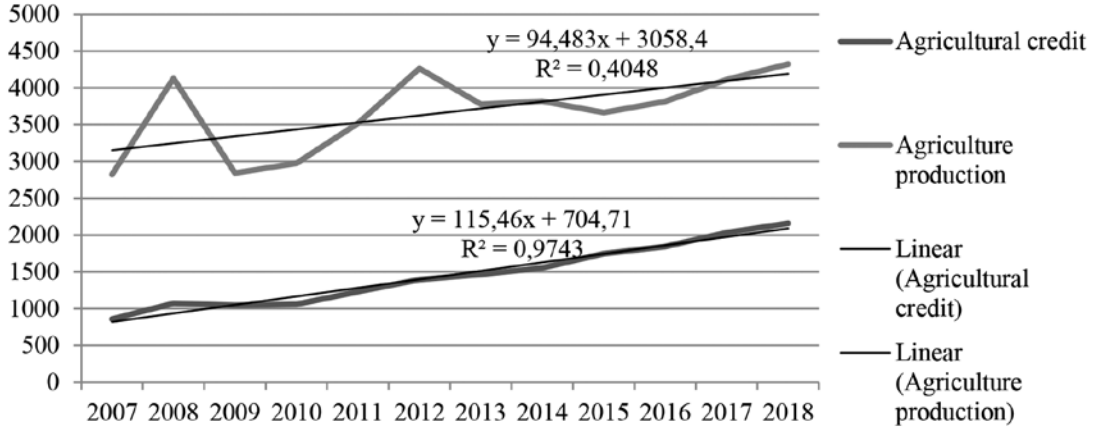

Figure 3: Relationship between agricultural credit and gross value added of the agrarian sector
Source: National Statistical Institute; Bulgarian National Bank

A factor for raising the credit is the reduction in the price of the loan. Nominal interest rates in BGN decreased from 8.8% at the beginning of 2007 to 3.5% at the end of 2018 (2.5 times the decrease). Nominal interest rates in euro decreased from 8.6% at the beginning of 2007 to 3% at the end of 2018 (Figure 4). There is a strong correlation between the decline in the level of interest rates in the economy and the widening of credit activity for the agrarian sector.

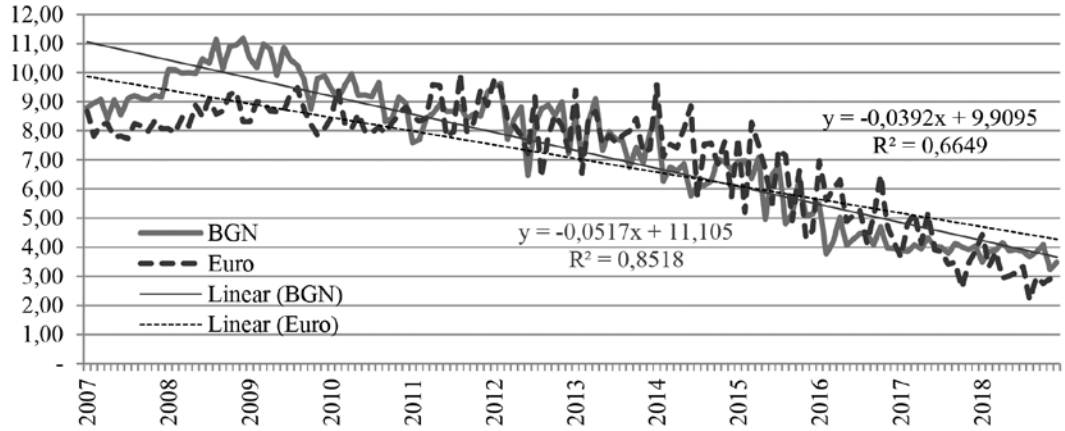

Figure 4: Nominal interest rates for business loans to non-financial corporations in BGN and EUR (in percent)
Source: Bulgarian National Bank, http://www.bnb.bg/

The analysis of the number of loans granted to the agrarian sector shows that in the period 2007-2018 the loans to BGN 25 thousand increased with the fastest rate, followed by loans between BGN 100-250 thousand and between BGN 50-100 thousand (Figure 5, left). The structure of credit by number is relatively constant. In 2018, 38.8% are loans up to BGN 25 thousand, 13.8% are loans 25-50 thousand BGN 15.5% are loans 50-100 thousand BGN 16.9% are loans 100 BGN -250 thousand, 8.2% loans BGN 250-500 thousand, 3.7% loans BGN 500-1000 thousand and 3% loans to BGN 1 million. Analysis of the structure of loans in 2007, shows that, in structural terms, loans exceeding BGN 100 thousand are increasing and the share of loans to BGN 100 thousand is decreasing. Small loans are traditionally demanded by small farms. The tendency to increase the number of loans above BGN 100,000 is in the direction of increasing the size of the farms in Bulgaria and with the increase of the investment activity in the sector mainly from the larger farms.

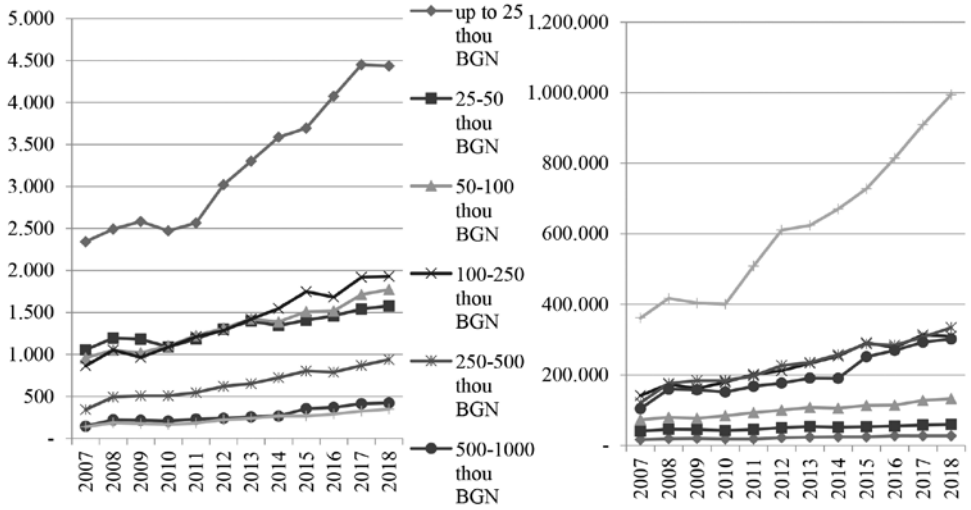

Figure 5: Loans granted to the agrarian sector for the period 2007-2018 by size, by number (left) and by value (right)
Source: Bulgarian National Bank, http://www.bnb.bg/

The analysis of the loans granted to the agricultural sector by value shows that the biggest increase was in the loans over BGN 250 thousand, the loans extended over BGN 1 million growing 2.8 times, loans between BGN 500-1000 thousand increased 2.9 times, and loans between BGN 250-500 thousand increase 2.7 times. Significantly less is the growth of loans below BGN 100 thousand - only 1.6 times for loans up to BGN 25 thousand, 1.5 times for loans between BGN 25-50 thousand and 1.8 times for loans between BGN 50-100 thousand (Figure 5, right). It can be summed up that the dynamics of lending to the agrarian sector is in the direction of increasing large loans, which are mostly of investment character for the companies and are subject to bigger farms. Structurally, in 2018 the main share in the credit mass has loans over BGN 1 million - 46.1%. Loans of BGN 500-1000 thousand form 14% of the credit value, credits of BGN 250-500 thousand are 15.5%, loans of BGN 100-250 thousand are 14.1%, loans of BGN 50-100 thousand are 6.1%, and loans of BGN 25-50 thousand are 2.8% and loans up to BGN 25 thousand forms only 1.2% of the total credit resources for agriculture. The dynamics in the structure of loans by size (in value) for the period 2007-2018 shows that for loans over BGN 250 thousand their share grows and for loans under BGN 250 thousand their relative share decreases. It is a fact that in 2018 38.8% of the numbers of loans granted are small in amount, up to 25 thousand, and they form only 1.2% of the credit weight in the sector. Conversely, if in 2018 the share of loans over 1 million leva is only 3% of the total, they form 46.1% of the total amount of loans granted.

The analysis of farm credit can be extended by type and terms of loan, according to its term. The dynamics of the number of loans granted to agricultural holdings by species for the period 2007-2018 is shown in Figure 6 (left). The number of current account loans (overdraft) has increased almost 2.5 times over the period (from 2363 to 5905). This credit supports the current activity of farms and ensures their current liquidity, mainly on smaller farms. The current account credit overcomes the temporary shortage of funds for farms by covering their costs up to the time of the sale of agricultural produce. Area subsidies are the main guarantees for this credit. At the same time, short-term credit up to one year marked a significant decrease in the number of loans granted. The index at the level of 2018 compared to 2007 is only 0.36. In practice, farms convert their short-term loans up to one year into current account loans (overdraft). The largest increase in the number of loans by type is over 5 years (from 735 to 2151), which is almost 3 times over

the analyzed period. The increase in long-term loans is due to the increased investment activity of farms that invest in the Rural Development Programs and the main recipients of these loans are mostly larger farms. Thus, long-term credit is a major factor in financing investments in agricultural holdings. The increase in the number of loans granted is also observed for loans with a term of 1-5 years, as their number in 2018 is 1.6 times higher than in 2007.

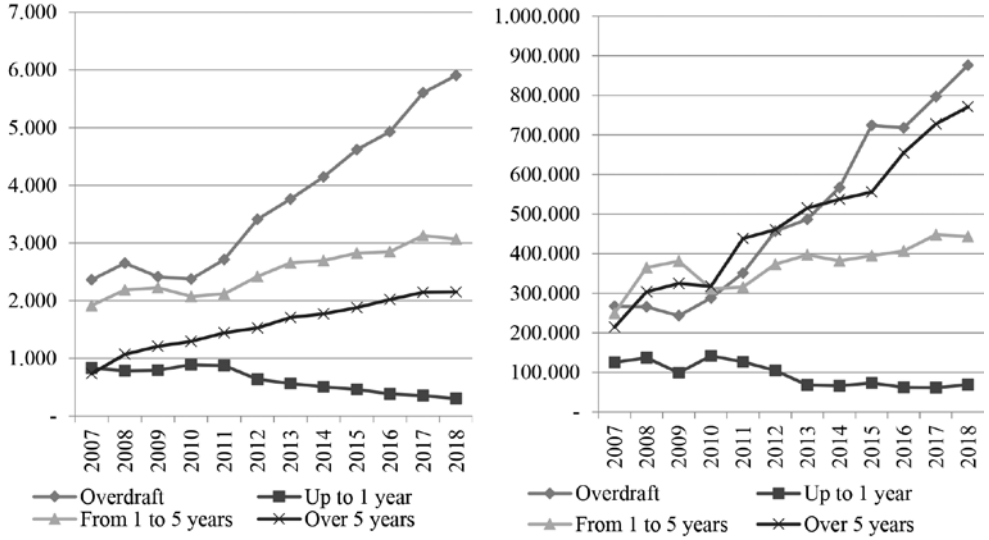

Figure 6: Loans granted to the agrarian sector for the period 2007-2018 by type and term, in numbers (left) and by value (right)
Source: Bulgarian National Bank, http://www.bnb.bg/

The dynamics in the structure of the number of loans granted shows that the overdraft credit growth (40.4% in 2007 to 51.7% in 2018), this increase being mainly at the expense of the decrease of the short-term credit to 1 year from 14.2% in 2007 to 2.7% in 2018. Structurally, long-term loans retained a relative share in loans of around 45%, reducing the share of loans by 1-5 years from 32.8% in 2007 to 26.8% in 2018, and the share of loans over 5 years rises from 12.6% in 2007 to 19.8% in 2018.

Changes in the number of loans granted by type and term are also reflected in their value amount. The dynamics of the credit for agricultural holdings by species in value for the period 2007-2018 is presented in Figure 6 (right). The current credit (overdraft) increased 3.3 times (from BGN 266 thousand in 2007 to BGN 876 thousand in 2018) over the analyzed period. The highest growth was in credits over 5 years, which increased from BGN 214 thousand in 2007 to BGN 730 thousand in 2018. Following the trend in the growth of the number of loans granted by type, the loan of 1-5 years grows 1.8 times, and short-term credit down to 1 year decreases more than 2 times. Changes in the structure of loans by term indicate an increase in the relative share of the current account loan (overdraft) from 31.1% in 2007 to 40.6% in 2018. If during the whole period 2007-2018 the short-term loan (overdraft and loans to 45%), the increase in overdraft credit is at the expense of the decrease in short-term credit to 1 year from 14.6% in 2007 to 3.2% in 2018. During the analyzed period the share of the loan over 5 years increase (from 25.2% in 2007 to 35.7% in 2018), while reducing the relative share of loans 1-5 years from 29.1% in 2007 to 20.5% in 2018.

The bank lending of agricultural holdings in Bulgaria in the period after 2007 shows steady growth and significantly determines the creation of production and expansion of assets in the sector. As a member of the European Union after 2007, Bulgaria benefits from the EU Common

Agricultural Policy. Farmers receive Pillar 1 payments for area and Pillar 2 payments to investment subsidies. Previous studies have shown the impact of subsidies on agricultural subsidies, but the effects of subsidies are indirect and non-linear [4]. Produced subsidies stimulate small farms to expand their lending by using subsidies as collateral. Improving lending conditions has an incentive for small farms to increase their long-term loans. Large farms receiving more subsidies and realizing economies of scale can expand their gross investment to a larger extent, which raises the demand for long-term and larger loans. Large holdings also have increasing working capital needs, which relocate short-term credit (especially overdraft) to them, especially until the time of receiving production subsidies. The length of the production process in agriculture has a significant impact on credit relations in the sector. At the same time, the reduction in the cost of credit (interest rates) acts to stimulate farms to expand their lending activity.

3. CONCLUSION

The financial situation of the agrarian sector is dynamic. Profitability of farm holdings earnings declined, despite net income growth and gross output, due to the fact that gross output is growing faster than net income. That reduces the ability of enterprises in the sector to self-financing. The profitability of fixed assets on farms holdings declined almost twice, despite almost double the increase in fixed assets.

Investment activity in the sector is increasing as a result of increasing the level of subsidization (5 times) and increasing the indebtedness of farms (3.5 times).

The credit has an important place in securing financial resources for agriculture (the number of loans is growing 2.5 times and the amount of loans granted 2 times). The fall in interest rates has a stimulating effect on the dynamics of lending to the agrarian sector.

Within the structure of the loans, the number of loans is up to BGN 25 thousand (increased 2 times). Large loans to over BGN 1 million predominate in value loans. Small farms are the main borrowers of small-sized loans, while large holdings are looking for mostly large loans.

The current account credit (overdraft) is growing at the highest rate - determined by the need for working capital. Given the reduced profitability, short-term credit has a growing role, especially for small farms. The significance of overdraft credit for large farms is growing due to the need to cover their growing production costs by the time they receive their production subsidies. More than 2 times the size of the large loans is growing, which proves increased investment activity mostly on big farms. But small farms have a growing need for long-term loans to support their investment in production.

The current account credit (overdraft) in value increased 4 times and the large loans over BGN 1 million almost 4 times, which shows a serious polarization in the structure of the farms in the agricultural sector by size.
The agricultural credit is strongly dependent on the creation of value added in the economy and determines output in the agrarian sector as a whole.

CAP subsidies (such as credit guarantees) have a stimulating effect on stimulating short-term credit, especially for larger farms to cover their current needs and smaller farms to invest. CAP support overtakes part of credit constraints on agricultural lending.

The importance of credit for improving the production capacity of farms in the agrarian sector is very high.

The financial market for agricultural loans in Bulgaria is well developed, commercial banks are stable, the agricultural sector is a dynamic sector in the portfolio of most banks in Bulgaria.

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FARMLAND SIZE INEQUALITY AND LAND CONCENTRATION IN BULGARIAN AGRICULTURE

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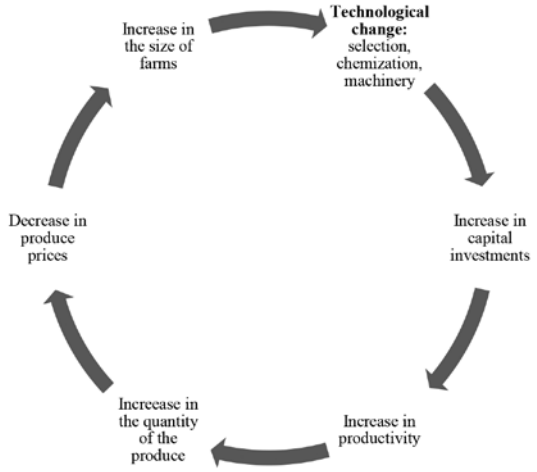
Abstract: *The aim of this paper is to examine the degree of inequality in farm size and the concentration of land in Bulgarian agriculture. Using a coefficient specified by Iosifescu, we study the degree of uneven distribution of farms in physical farm size groups in Bulgaria. The Gini Index is applied to compare the inequality in the utilized agriculture area distribution among farmers in Bulgaria and other EU member states. The assessment of the land concentration is based on a calculation of the mid-point hectare at national level and additional indicators.*

Keywords: *inequality, farm size, land concentration.*

1. INTRODUCTION

In the light of the Common Agricultural Policy implemented since 1994, the classic concept of the agricultural treadmill can be revised in a new light. Introduced by Cochrane (1958) [1], the concept explains the land concentration in agriculture under the influence of companies that create technological innovations (picture 1). Direct payments accelerate the treadmill cycle at the „increase in capital investment" stage, influencing market entry, growth and exit of farms. A natural consequence of the application of the income support for farmers is the increase in prices of fixed production factors and deliveries for the agricultural production [2]. This puts additional barriers to entry into agriculture and the development of small farms. Research has shown that the effect of this form of political intervention is to influence the speed of structural changes in agriculture [3].



Picture 1. A cycle of agricultural treadmill [1]

A serious social risk linked to the impact of Single Area Payment Scheme on the concentration process is the inequality in the distribution of the territorial size of farms. The aid per hectare

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results in an uneven distribution of the majority of the aid in favor of farms with a larger size [4]. Therefore, the possibilities of these farms to capitalize part of these funds are greater.

The aim of this paper is to examine the degree of inequality in farm size and the concentration of land in Bulgarian agriculture. The social significance of this issue stems from the fact that in many cases the distribution of the income of farms is strongly influenced by the distribution of their physical size [5].

2. METHOD

Secondary data on the structure of agricultural holdings in 2005, 2007, 2010 and 2013 has been used from the World Programme for the Census of Agriculture, available in the Eurostat statistical database [6], supplemented with available data from the survey on farm structure in Bulgaria in 2016 [7], carried out in compliance with the requirements of Regulation (EC) 1166/2008.

For the study on the changes in the farmland concentration, the average size of the agricultural holdings, the growth rate of the average size of the farms and the number of the farms indicators were used. The benchmark proposed by Longhrey and Donellan (2017) [8] was used for the comparative assessment of the level of agricultural land concentration in Bulgaria and in the other Member States of the European Union, namely the median value of the size of farms ("mid-point hectare"), calculated according to formula (1).

$$\tilde{x} = LL + w\frac{\frac{n}{2} - F}{f}, \text{ where:} \quad (1)$$

$\tilde{x}$ – the median value of the size of agricultural holdings;
LL – the lower limit of the median size class;
W – width of the interval in which the median value of the size of agricultural holdings is contained;
F – cumulative distribution of the hectares up to LL;
f – the number of hectares in the interval containing the median value of the size of agricultural holdings;
n – the total number of hectares in the population.

On the basis of the values of this indicator, we conclude that in fourteen European Union Member States (including Bulgaria) the median value of the farm size, in terms of utilized agriculture area (UAA), exceeds 100 hectares, i.e. according to this estimation method, these are the countries with the most concentrated land. Available data from Eurostat does not allow accurate estimation of the level of land concentration in these countries to be achieved by this method due to a lack of information on the width of the interval above 100 hectares.
In order to characterize comparatively the concentration of land in Bulgaria and the other thirteen EU Member States, we use two indicators, namely: 1) the mean size of agricultural holdings in the size class, which controls the highest relative share of the UAA in the country; 2) the share of agricultural land controlled by agricultural holdings in the size class which controls the highest relative share of UAA in the country.

To estimate the degree of inequality in the distribution of land, the coefficient of Iosifescu and the Gini coefficient were used. To measure the degree of inequality in the distribution of the

number of farms in the groups of farms according to farm size, coefficient (I), adapted by Iosifescu [9] was applied. Similarly to the Gini coefficient, the Iosifescu coefficient takes values from 0 to 1. The value of the coefficient is 0 in case of equal distribution of the number of farms in each size class. Value 1 (or 100%) indicates a maximum level of inequality.

$$I=\frac{Dx}{2\bar{X}}, \text{ where:} \quad (2)$$

$$Dx=\frac{4\sum_{i=1}^{n}|xi-MeX||yxi-MeYx|}{n^2}, \text{ where:} \quad (3)$$

i = 1….n –the size classes by UAA;
n – number of UAA size classes;
xi – number of holdings falling within interval i;
MeX – number of holdings falling within the central interval (if we have nine size classes of UAA, this is the fifth interval);
Yxi – serial number of interval i;
MeYx – median of the serial numbers of intervals.

The Gini coefficient (G) is used to measure the inequality in the distribution of land among farms and is calculated on the basis of the geometrical interpretation of the Lorenz curve according to the formula (4).

$$G=\frac{\frac{1}{2}-\frac{1}{2}\sum_{i=1}^{n}(p_i-p_{i-1})\,(Q_i+Q_{i-1})}{\frac{1}{2}}, \text{ where: (4)}$$

Pi is the cumulative percentage of the number of agricultural holdings;
Qi is the cumulative percentage of the UAA.

3. RESULTS

Figure 1 shows the average size of agricultural holdings in Bulgaria during the years 2005 -2016.

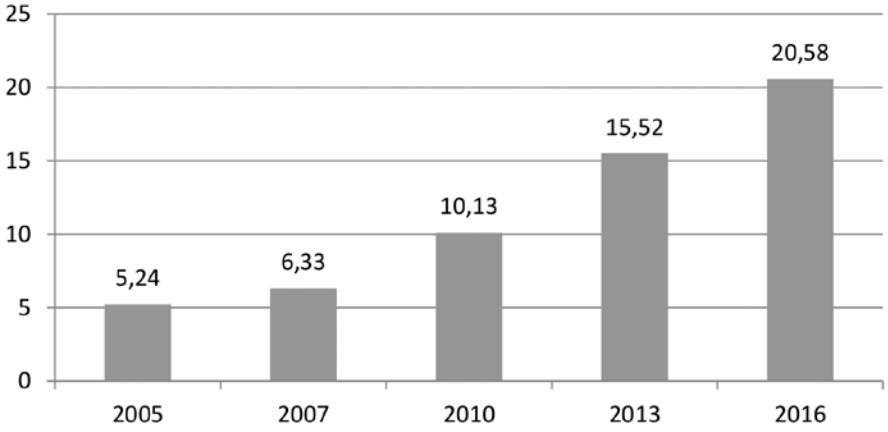

Figure 1: Average size of agricultural holdings with UAA (hectares), excluding the common land, 2005-2016.
Source: author's calculations, based on Eurostat data and MAFF, Agrostatistics Department, DG ARP, FSS

Statistical regions (NUTS -2)	***Average UAA (ha)***			***Growth rate of the average size of agricultural holdings, 2010 -2016 (%)***
	2010	2013	2016	
Bulgaria	10,13	15,52	20,58	103,14
Northwestern	15,41	28,56	43,86	184,65
Northern Central	17,10	26,60	35,20	105,84
Northeastern	17,72	28,09	39,66	123,83
Southeastern	13,42	21,44	29,57	120,31
Southwestern	3,66	5,65	7,39	101,81
Southern Central	4,19	6,47	7,96	89,93

Table 1: Average size of agricultural holdings with UAA by NUTS -2 statistical regions, excluding the common land, 2010 -2016
Source: Author's calculations, based on MAFF data, Agrostatistics Department, DG ARP, FSS

The average size of agricultural holdings in Bulgaria has increased almost fourfold during this period, indicating a process of increasing concentration of land. Such a process is observed in all NUTS -2 statistical regions of the country, but with differences in the growth rate of the average farms' size (Table 1).

In the Southwestern and Southern Central regions, the size of farms is the smallest and grows relatively slowly; a slowdown in the overall trend of reducing the number of farms is also observed [10]. Traditionally, most of the permanent crops in the country are concentrated in these areas and they produce most of the fresh vegetables, melons, watermelons and strawberries grown in the open air. The average size of farms is the largest in the Northwestern, North Central and Northeastern regions, covering about 68% of the cereal crops area and a larger share of the technical crops grown in the country.

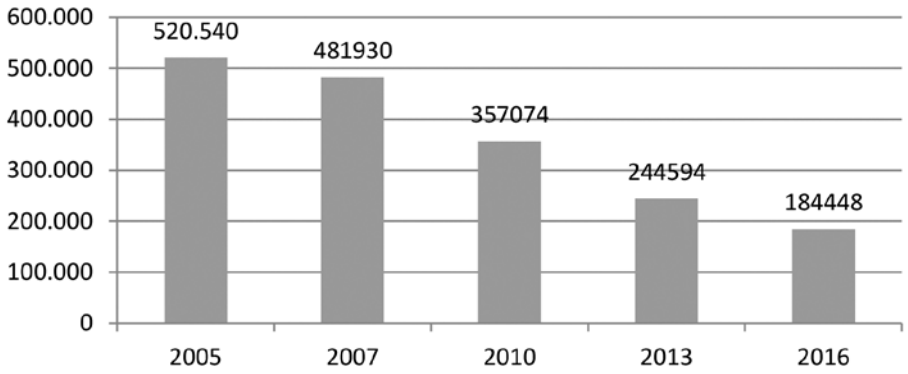

Figure 2: Number of holdings with UAA, without statistical units, providing common land for animals' grazing
Source: author's calculations, based on data from Eurostat and MAFF, Agrostatistics Department, DG ARP, FSS

The farmland concentration in Bulgaria is accompanied by the release of land resources from small farms that dropped out of the market during this period (Figure 3), as well as an increase in the UAA during the period (65% according to Eurostat data and 39 % when deducting the common land from the UAA on the basis of data from the study on the structure of agricultural holdings in Bulgaria).

In spite of the debated increase in the UAA in the country, the number of agricultural holdings decreases almost three times in the period 2005 -2016 (fig. 2). This is due mainly to a decrease in the number of small farms with UAA under 10 ha (fig.3). During the period 2005 -2013, the number of small holdings (less than 10 hectares) decreased by over 50% (fig. 3).

The opposite tendency is evident in the number of largest farms, those with 100 hectares or more of utilized agricultural area. In the period 2005-2013 their number increases by more than 60% (fig. 4).

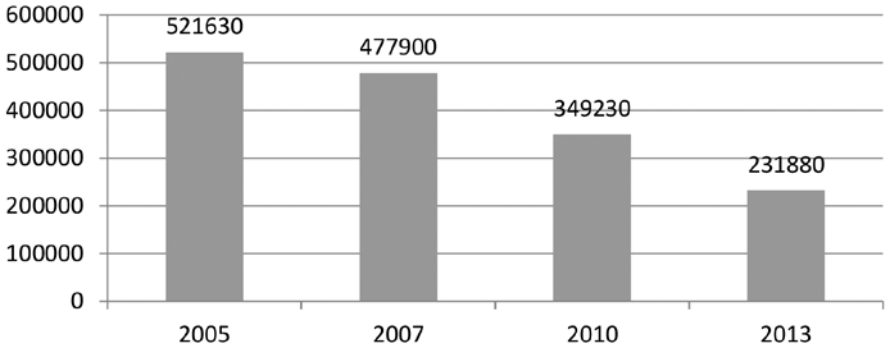

Figure 3: Number of holdings with less than 10 hectares of UAA, 2005-2013
Source: author's calculations, based on data from Eurostat

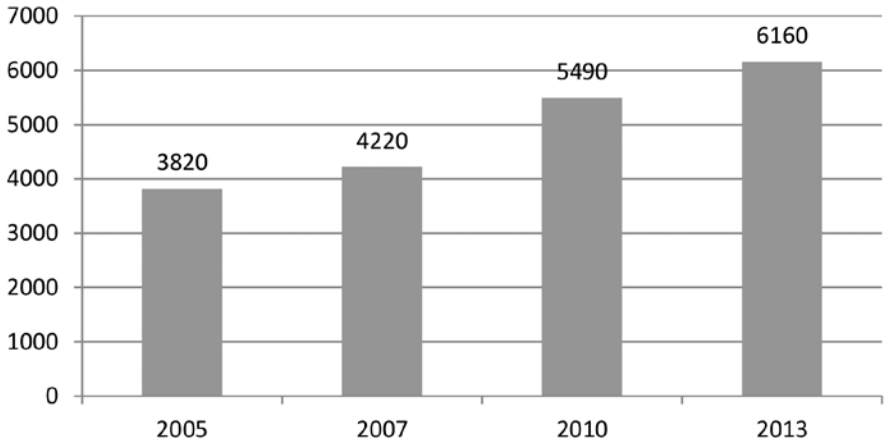

Figure 4: Number of holdings with UAA 100 hectares or over
Source: author's calculations, based on data from Eurostat

Table 2 shows the values of the Gini coefficient, characterizing the farmland size inequality in the six NUTS-2 regions in Bulgaria.

	2005	***2007***	***2010***	***2013***
Bulgaria	0,887	0,912	0,938	0,934
Northwestern	0,886	0,925	0,950	0,937
North Central	0,909	0,930	0,937	0,925
Northeastern	0,926	0,941	0,941	0,929
Southeastern	0,938	0,940	0,944	0,933
Southwestern	0,661	0,775	0,919	0,921
South Central	0,744	0,802	0,890	0,904

Table 2: Values of the Gini coefficient by NUTS-2 statistical regions in Bulgaria, 2005-2013
Source: author's calculations, based on data from Eurostat

The data in table 2 show that there is high inequality in the distribution of the physical size of agricultural holdings in the statistical regions of Bulgaria in 2005 (with values of the Gini coefficient over 0.7 and below 0.9 only in the Southwestern and South Central regions) and this inequality increases in the year of accession of the country to the European Union. With the exception of the Southeastern Region, the inequality in 2013 exceeds the values for 2005, with the increase in the value of the indicator being particularly high in the Southwestern and South-Central regions.

Table 3 presents the values of some indicators of land concentration and farmland size inequality in the EU Member States where the median size of an agricultural holding exceeds 100 hectares, i.e. the countries with the most concentrated size of agricultural holdings.

State	***Average farm size in the size class "≥100 hectares" (hectare)***	***Share of agricultural land controlled by farms ≥100 hectares (%)***	***Yosifiscu coefficient***	***Gini coefficient***
Bulgaria	631,57	83,65	0,535	0,934
Czech Republic	662,0842	87,80	0,356	0,755
Denmark	229,43	69,02	0,405	0,604
Germany	270,60	56,97	0,517	0,615
Estonia	393,34	73,53	0,436	0,777
Spain	249,69	55,53	0,381	0,774
France	175,92	61,90	0,267	0,574
Latvia	344,75	53,06	0,516	0,757
Luxemburg	156,51	53,74	0,347	0,486
Hungary	392,75	64,44	0,540	0,917
Portugal	348,92	57,87	0,521	0,824
Slovakia	743,99	90,38	0,302	0,864
Sweden	210,43	55,24	0,548	0,625
United Kingdom	320,67	75,04	0,355	0,621

Table 3: Farmland size inequality and concentration in selected Member States, 2013.
Source: author's calculations, based on data from Eurostat

The information in the table shows relatively high levels of farmland concentration in Bulgaria - the average size of the largest agricultural holdings (100 and over 100 hectares) and the share of agricultural land controlled by this group of farms is higher only in the Czech Republic and Slovakia. The level of inequality in the distribution of the number of farms in the size classes classified according to the utilized agricultural area in Bulgaria is relatively high (the value of the Iosifescu coefficient is higher only for Sweden). The comparison of the Gini coefficient values for the EU Member States with the most concentrated land shows Bulgaria's leading position regarding the unequal distribution of land among agricultural holdings.

4. CONCLUSIONS

Firstly, during the period 2005-2016 there is a process of farmland concentration in Bulgaria, reflected in the increase of the average size of the farms in the country (almost four-fold) and in each of the six NUTS-2 statistical regions, as well as in a reduction in the number of farms (nearly three times). As a result of these changes Bulgaria ranks among the three Member States of the European Union with the most concentrated farmland.

Secondly, the findings of this research are consistent with previous studies [11] indicating that the sharply dual farm structure, as a feature of the so-called „Soviet model of agriculture" has not been overcome in the process of land restitution in post-communist Bulgaria. In 2005, the Gini coefficient is under 0.9 in only two of the six statistical regions of the country.

Thirdly, the inequality in the land distribution among agricultural holdings increases after Bulgaria's accession to the European Union in 2007. A comparison with the other EU Member States with the most concentrated farmland shows that in 2013 Bulgaria occupies a leading position in terms of the inequality in the physical size of agricultural holdings.

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CRYPTOCURRENCIES: PERSPECTIVES OF A DIGITAL-ECONOMIC PHENOMENON

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Abstract: *Cryptocurrencies are a digital-economic phenomenon that appeared in the last 6-7 years and attracted considerable attention. From the seemingly worthless concept of so-called „cryptocurrencies", they gained tremendous value and thus challenged some of the fundamental settings of the ruling economy. Their value is not determined by some monetary institution as it is with the euro, the dollar or some other currency. However, the seemingly stable value of the cryptocurrency has, over the period of its existence, been substantially oscillated several times, suggesting certain elements of risk in terms of future investment in them. The trend of the cryptocurrency value is currently unfavorable. Does this mean that a complete concept of cryptocurrencies will come to an end? What is the perspective? Can we expect the re-increase of the value of the cryptocurrency? Will the cryptocurrencies replace the existing money in recent time? This and many other issues are awaiting their answers in the upcoming period. This paper seeks to provide some guidelines based on the analysis of the previous trend of cryptocurrency value and to provide answers to some of these questions.*

Keywords: *cryptocurrencies, financial market, finance*

1. INTRODUCTION

Cryptocurrencies are a digital-economic phenomenon that has emerged in the last 6-7 years and announced the emergence of new trends in the field of electronic business and the digital economy. The cryptocurrencies were formed as a complement to one another invention. Satoshi Nakamoto (2008) is considered to be the founder of the first true and still current cryptocurrency Bitcoin. At the heart of Satoshi's invention there is a way to build a decentralized digital money system. In the nineties, there were many attempts to create digital money, but all failed.

One of the main features of cryptocurrency is the fact that it is not controlled by a single monetary institution. The issuance of the cryptocurrency is performed on a private basis. It is nothing new in itself. In the past, private-owned currencies were used and they worked well. However, for example, unlike bank deposits, they are not mandatory and cannot be redeemed [1]. Because of this, cryptocurrencies bear a sign of something speculative [2]. Due to the speculative nature, the value of the cryptocurrencies through their existing lifetime has on several occasions significantly oscillated, which seriously challenged credibility with regard to further investments. The main objective of this paper is to analyze the fluctuations of prices and to explore the correlation between these fluctuations and levels of volume and market capitalization at the cryptocurrency market. This paper consists of an introduction, literature reviews, methodology, results and conclusion.

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2. LITERATURE REVIEW

The simplest definition of the concept of cryptocurrencies would be that it is only a limited set of data inputs into a database that no one can change without meeting the required conditions. Cryptocurrencies are an alternative to existing types of payments. The technology that is in the background of cryptocurrencies allows the sending of cryptocurrencies directly to other persons without the intermediation of a third institution such. A business that takes place in such a manner ensures a certain degree of anonymity.

Cryptocurrencies can be understood as a form of virtual accounting systems. Within these systems, records are kept of each transaction. Cryptocurrencies are primarily used for the purchase and sale of goods and services, although some new cryptocurrencies also work to provide a set of rules or obligations to their owners. They have no intrinsic value because they are not redeemable for other goods, such as gold. [3]

The cryptomarket represents a total volume of all transactions that take place using cryptocurrencies. Since cryptocurrencies business is undertaken for the same reason as any other business, which is a profit, it is impossible to avoid linking them to the financial market. The very fact that cryptocurrencies can be converted into real money, gives a new dimension to the financial market.

The market of cryptocurrencies has become a phenomenon because of its capitalization rate. According to data from 2017, Bitcoin has reached a market capitalization of over $ 300 billion (coinmarketcap.com 2018). After the emergence of Bitcoin, a further 1,000 new cryptocurrencies emerged. [4] Each cryptocurrency uses a slightly different method of implementation that makes it unique enough to be a separate currency. Each cryptocurrency has a separate estimate and there have been numerous exchanges for the purchase, sale and trade of such cryptocurrencies. Coinbase.com, Binance.com, Abra.com and Kraken.com are some of the cryptocurrency exchanges. [5]

Despite so much capitalization, the market of cryptocurrencies has not become the subject of regulation of government institutions. [6]. Frequent significant fluctuations and some data show that the cryptomarket is still inefficient and still in its infancy. [7]. Cryptocurrencies enabled some lucrative investment options for investors who are prepared to bear high risk. Bitcoin ranged from several cents per unit and jumped to $ 20,000 (Quandl.com). If investors could capitalize on a sharp increase in prices and avoid falling, they could make huge returns. Due to investment opportunities, different hedge funds, investment funds and individual investors have emerged.

Although the future of cryptocurrencies as an investment is currently uncertain, some in the investment community consider them as a valid investment option. [5] Initial research has shown that due to the way in which Bitcoin was made and its digital „mining" process its price should be relatively stable.[8] Cryptocurrencies behave according to three currency functions: media exchange, value storing and moderate transfer rates. [9] On the other hand, there is a high likelihood of the existence of speculative bubbles in cryptocurrency prices, and as long as the cryptomarket is not regulated by the legal framework, security of all cryptocurrencies is at high risk for the entire financial system and the world economy. The cryptomarket has become a very complex segment from the aspect of analysis and prediction. There are several papers in the field of analysis and forecasting of the movement of the cryptomarket. One of the first of its kind was LeBron [10], which proposed a model based on heterogeneous agents. After this work, Chakraborti et al. [11] and Chen et al [12] appear with additional modification of the model.

3. METHODOLOGY

The main focus of this research is the exploration of fluctuations on the cryptocurrency market during the 4-year period 2015-2018. Research process included:

- data collection,
- data preparation,
- data analysis and
- results interpretation.

Authors have collected data for 23 cryptocurrencies: Bitcoin, Ethereum, EOS, Litecoin, Binance Coin, Stellar, Cardano, Tether, TRON, Bitcoin SV, Monero, Dash, IOTA, NEO, Ontology, Maker, NEM, Ethereum Classic, Tezos, Basic Attention Token, Zcash, Dogecoin and VeChain. Analyzed data includes the following indicators for each day during the period 2015-2018:

- open daily price,
- close daily price,
- daily close ratio,
- highest daily price,
- lowest daily price,
- daily spread,
- volume and
- market capitalization.

The analysis consisted of a comparison of prices in different periods and exploration of correlation between volume and market capitalization, on one side, and open price, highest price and spread, on the other side. Correlation calculation was based on the Pearson correlation coefficient. Overall analysis has been implemented with the assistance of Tableau, software package for the interactive visual exploration of multivariate data sets.

3. RESULTS

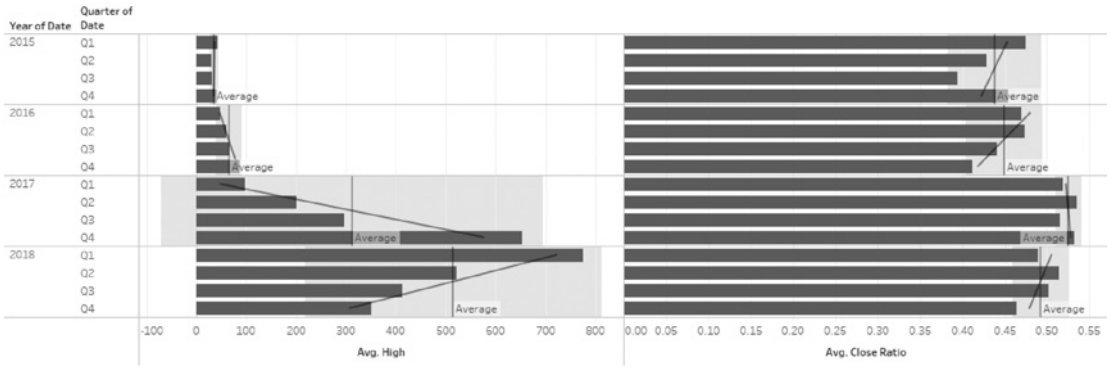
Period of 4 years was divided into quarters in order to get the best insight into data dynamics. It can be seen that the highest value of the average highest daily prices occurred from the 4th quarter of 2017 to 2nd quarter of 2018. The average highest daily price achieved the highest value during the 1st quarter of 2018, but the biggest decrease of average highest price was observed during the following quarter of 2018. This was followed by a decrease in market capitalization and volume.

Further analysis showed that the most intense (individual cryptocurrency daily price change higher than 50%) and frequent daily price variations occurred from the 1st quarter of 2017 to 1st quarter of 2018. During this period there were more daily price changes higher than 50%, than during the rest of the remaining period 2015-2018. In addition, the period between the 1st quarter of 2017 and the 1st quarter of 2018 is the only period in which daily price changes higher than 150% have happened.

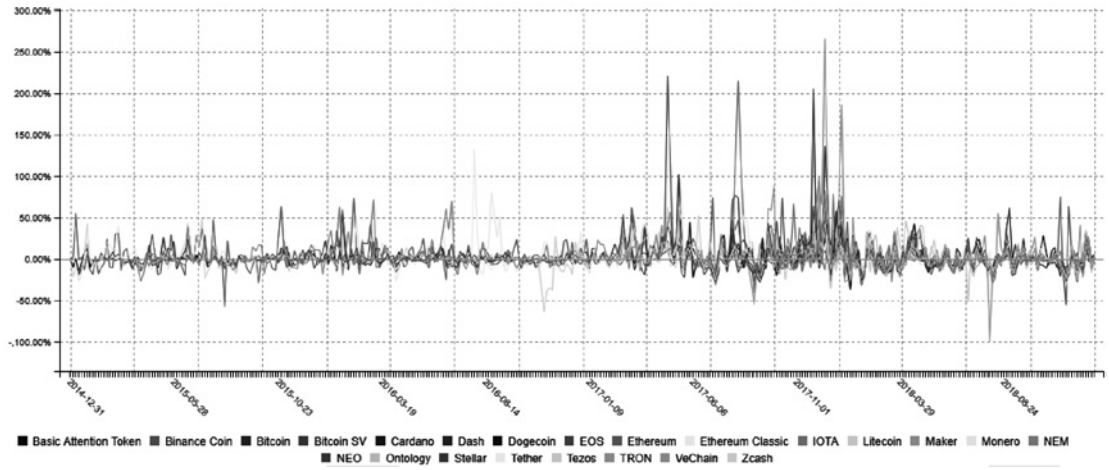
The next step in the analysis was an observation of market capitalization and volume. Market capitalization was at the highest level from the 4th quarter of 2017 to the 2nd quarter of 2018. Value of market capitalization, during the previously mentioned period, was equal to 62.27% of total market capitalization for the whole period 2015-2018. This situation was just a continuation

of constant growth of market capitalization from the 3rd quarter of 2015 to 1st quarter of 2018. On the other side, from 2nd to 4th quarter of 2018 market capitalization value was constantly reduced. This value was 47.7% lower during the 4th quarter of 2018 comparing to the 3rd quarter of 2018.

The same situation can be seen when analyzing volume during the observed period. The only difference occurred during the 4th quarter of 2016 when the volume was decreased, but market capitalization was increased. During all other periods, volume and market capitalization have followed the same pattern.



Graph 1: Average highest prices and average close ratio

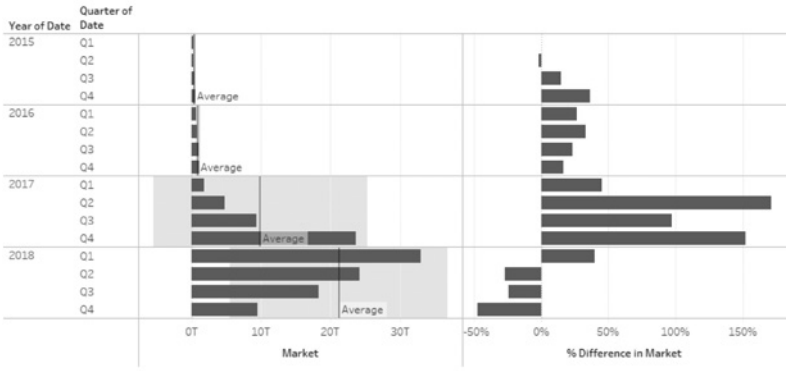


Graph 2: Daily price changes

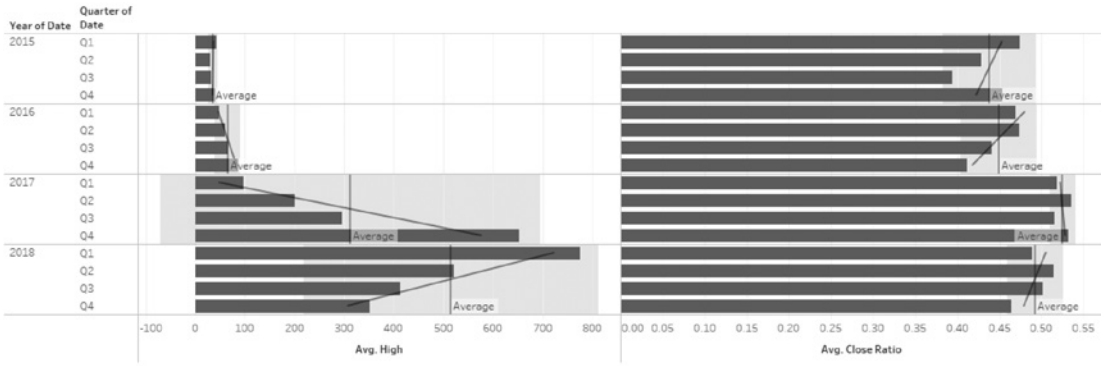
Additionally, the average open daily price, highest daily price, average daily spread, market capitalization and volume are compared in the following graph. This was conducted in order to explore connection between higher levels of prices and volume of transactions at the cryptocurrency market. Analysis showed that there is a strong positive correlation between average volume and average daily spread (correlation coefficient= 0.7662), average open daily price (correlation coefficient= 0.8363) and average highest daily price (correlation coefficient= 0.84). The same conclusions can be made when comparing average market capitalization and average daily spread (correlation coefficient= 0.7301), average open daily price (correlation coefficient= 0.9449) and average highest daily price (correlation coefficient= 0.9455).

This shows that price fluctuations and high price levels are the main motivators for cryptocurrency trade. Since the cryptocurrency market is not regulated by any kind of central authority, such as the central bank, fluctuations and speculations are just some of the expected consequences.

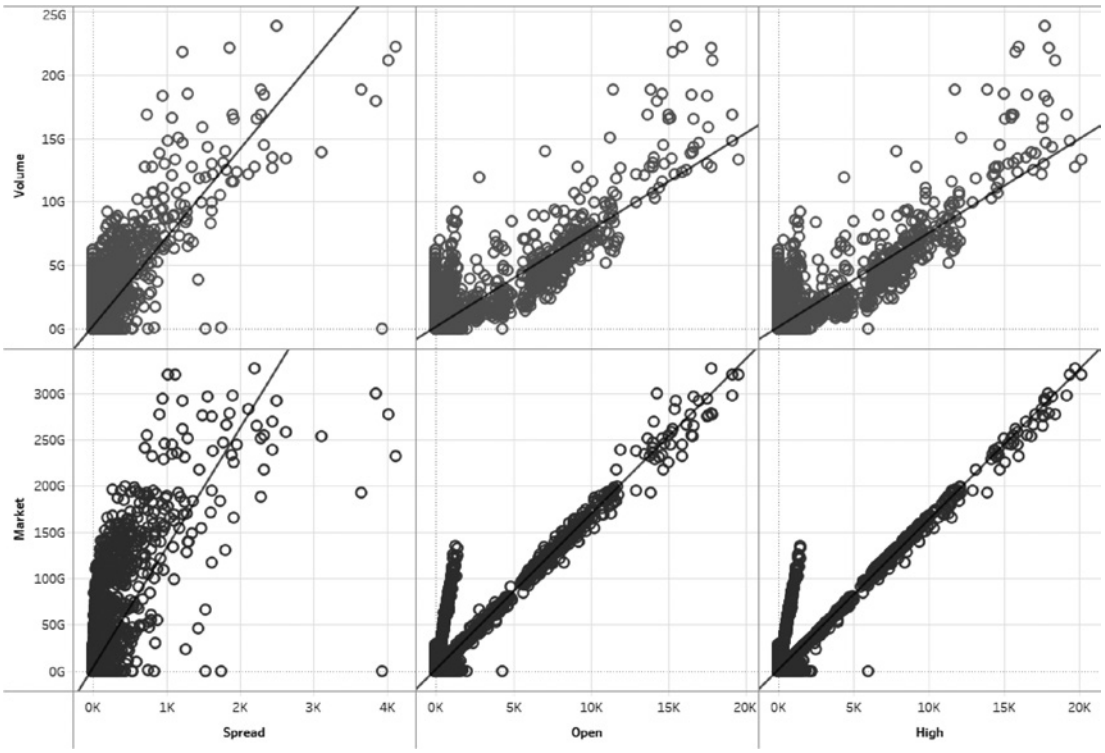
The problem main of the cryptocurrency market is not in the higher or lower level of cryptocurrency prices. The main problem for the future and attractiveness of cryptocurrencies as a more common instrument of exchange is in high levels of fluctuations and uncertainty.



Graph 3: Market capitalization



Graph 4: Market volume



Graph 5: Correlation analysis

4. CONCLUSION

This research showed that there is a high correlation between volume and market capitalization and variations of price levels. That fact defines the state of the cryptocurrency market that enables more frequent price variations. More variations lead to increase of cryptocurrency prices, volume and market capitalization at the beginning. Later, these variations went in the direction of decrease of cryptocurrency prices, volume and market capitalization.

These situations in the short period of 4 years, are a good indicator of weaknesses of the cryptocurrency market. It is not regulated by any kind of central authority. It is decentralized and this strength, as many calls it, becomes a weakness for wider use of cryptocurrencies in regular life.

Results obtained by this research can be used as a base for further research in order to answer some of the following questions. What needs to be done in order to decrease the level of price fluctuations at the cryptocurrency market? Is a big number of cryptocurrencies direct consequence of these fluctuations and will the number drop if this market becomes more regulated? Will some kind of regulation enable wider use of cryptocurrencies in common life?

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BANK RESTRUCTURING THROUGH THE PROCESS OF BANK INTEGRATION DURING THE GLOBAL FINANCIAL CRISES OF 2007

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Abstract: *The global financial, marked as a systemic crisis of investment banking, was caused by the activities of one of the most exploited financial derivatives - the process of securitization. Considering the fact that the financial sector is one of the most globalized sectors, the financial crisis from the United States immediately struck the European market and has grown into a worldwide financial crisis. In the context of the processes of banks integration in the condition of the financial crisis, the question is whether there is a trend of increase or decrease of these processes? Therefore, the main objective of the paper is an analysis of the activities of banks integration during the financial crises and the adoption of appropriate conclusions.*

Keywords: *banks, restructuring, integration, financial crises, mergers, acquisitions.*

1. INTRODUCTION

The global financial crisis, marked as a systemic crisis of investment banking, was caused by the activities of one of the most exploited financial derivatives - the process of securitization. The main weaknesses of the securitization process, which also represented risks to global financial stability were: credit and liquidity risk management and the risk of the counterparty. Considering the fact that the financial sector is one of the most globalized sectors, the financial crisis from the United States immediately struck the European market and has grown into a worldwide financial crisis.

In the context of the process of mergers and acquisitions in the banking sector in the condition of the financial crisis, the question is whether there is a trend of increase or decrease of these processes? If you look through the prism of history, in turbulent conditions, with particular emphasis on the conditions when financial markets do not offer a continuous flow of capital or they are illiquid, the processes of merger and acquisition are stagnated. In the condition of financial crisis, the strategic objectives of financial institutions are changed in order to achieve national priorities, solvency, liquidity and stability in their operations.

2. ACTIVITIES OF MERGERS AND ACQUISITIONS OF BANKS DURING THE GLOBAL FINANCIAL CRISIS IN THE UNITED STATES

In the United States, during the global financial crisis, a downward trend started in the number and value of transactions of mergers and acquisitions in the banking sector. Figure 1 shows the data for the number and value of transactions of mergers and acquisitions in the banking sector of the United States.

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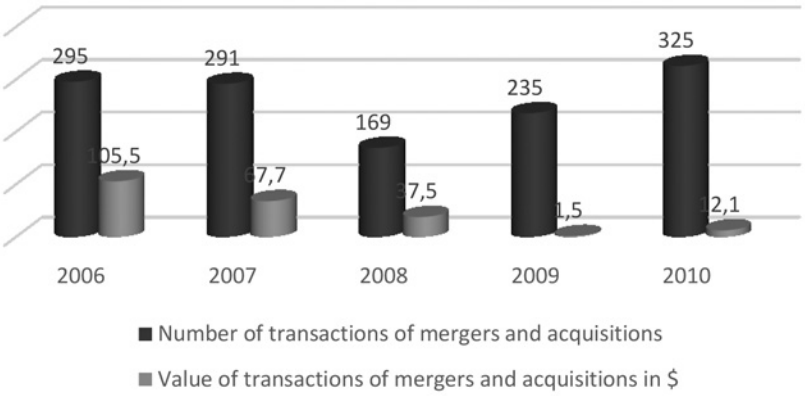


Figure 1: Number and value of transactions of mergers and acquisitions in the US banking sector. [1]

From the data in the Figure 1 can be concluded that on the territory of the United States, during the global economic crisis, there was a downward trend in the number and value of transactions of mergers and acquisitions in the banking sector. In 2008 was recorded the lowest volume of transactions in amount of 169, while the lowest value of the transactions of mergers and acquisitions of banks was realized in 2009, and it amounted to $1.5 billion.

Bank M&A transactions rebounded in 2010 from depressed levels experienced during the financial crisis. Disclosed deal value increased to $12.1 billion from $1.5 billion in 2009, headlined by Bank of Montreal's Q4 acquisition of Marshall & Ilsley Corporation for $5.8 billion.

Banking deals saw a significant uptick in volume and average deal value in 2010 compared to 2009, with 325 deals occurring in 2010 compared to 235 in 2009. As positive trends in the economy emerged, investor confidence rose. The increase in aggregate volume and deal size is attributed to the resurgence of traditional (non-FDIC) bank deals in 2010. [1]

3. ACTIVITIES OF MERGERS AND ACQUISITIONS OF BANKS DURING THE GLOBAL FINANCIAL CRISIS IN EUROPE

Table 1 provides an overview of the twenty largest mergers and acquisitions in the financial sector during 2009 in Europe.

Based on twenty major processes of mergers and acquisitions in the financial sector, during the global financial crisis, whose overview is given in Table 1, can be performed generalization of the directions of movement of the crisis: [3]

Nationalization of some major financial companies or taking a majority stake by the state (almost half of the twenty transactions in the period of 2009 belong to this type). Key transactions were the recapitalizations of Commerzbank for €10 bn, Royal Bank of Scotland (RBS) for €5,9bn and Lloyds Banking Group for €4,5bn; the nationalization of Anglo-Irish Bank for €3,8bn; and a €3bn capital injection into HSH Nordbank;

The rescue of the companies with difficulties in its operations. Some western financial institutions took the opportunity to take over the financial exhausted target companies in their „secondary home markets";

Month	Target company	Target country	Bidder company	Bidder country	Deal value (€m)
January	Commerzbank AG (25.01%)	Germany	Government of Germany	Germany	9,970
January	Barclays Global Investors	United Kingdom	BlackRock Inc	USA	9,678
January	Royal Bank of Scotland (29,79%)	United Kingdom	HM Treasury	United Kingdom	5,884
March	Lloyds Banking Group Plc (21,60 %)	United Kingdom	HM Treasury	United Kingdom	4,455
January	Anglo Irish Bank Corporation Limited	Ireland (Republic)	Irish Ministry of finance	Ireland (Republic)	3,827
April	Hypo Real Estate Holding AG (91,35%)	Germany	Government of Germany	Germany	3,302
February	HSH Nordbank AG (25.99%)	Germany	Government of Germany	Germany	3,000
July	BPCE SA (20%)	France	Government of France	France	3,000
November	West LB AG (49%)	Germany	Government of Germany	Germany	3,000
August	Friends Provident Plc	United Kingdom	Resolution Limited	United Kingdom	2,164
January	KBC Group NV	Belgium	Government of the Flemish Region	Belgium	2,000
February	Alleanza Assicurazioni SpA (49,60%)	Italy	Assicurazioni Generali SpA	Italy	1,805
December	Intesa Sanpaolo Servizi Transazionali SpA Sanpaolo Bank SA	Italy	State Street Corporation	USA	1,750
January	Societe Generale asset management business	France	CAAM	France	1,620
July	Paris RE	Switzerland	PartnerRe Ltd	Bermuda	1,435
May	LeasePlan Corporation NV (50%)	Netherlands	Fleet Investments BV	Netherlands	1,300
November	Delta Lloyd Groep (38.4%)	Netherlands			1,120
November	JPMorgan Cazenove (49,99%)	United Kingdom	JPMorgan Chase & Co USA	USA	1,119
October	Sal. Oppenheim jr & Cie SCA	Luxembourg	Deutsche Bank AG	Germany	1,000
September	Genesis Lease Limited	Bermuda	AerCap Holdings N.V.	Netherland	890
Other Grand total			**Sub- total**		62,320
			17,761		
			80,081		

Table 1: Top twenty largest mergers and acquisitions during 2009 in Europe.[2]

Divestment of non-core banking subsidiaries. European banking saw several divestments outside the wealth management arena. The largest was Deutsche Bank acquisition of ABN AMROs former commercial banking businesses for €700m, after a protracted sale process that began when RBS and Fortis received government support in 2008. This trend could have a significant impact on the activities of Western European banks in the regions of Central and Eastern Europe. This situation opens the possibility of divesting subsidiaries in markets where banks failed to realize planned projects;

Acquisitions in asset management and private banking. Mergers and acquisitions activities in asset management increased during the second half of 2009. Notable deals included the acquisitions of Sal.Oppenheim by Deutsche Bank for €1bn, Julius Baers purchase of ING Bank Switzerland for €344m, and BNY Mellons acquisitions of Insight Investment Management from Lloyds Banking Group for €273m;

Significant focus on achieving the economy of scale and increase market shares at national level and fragmented domestic markets. This trend signifies further consolidation of small and medium-sized banks in fragmented markets of Italy, Spain and Germany;

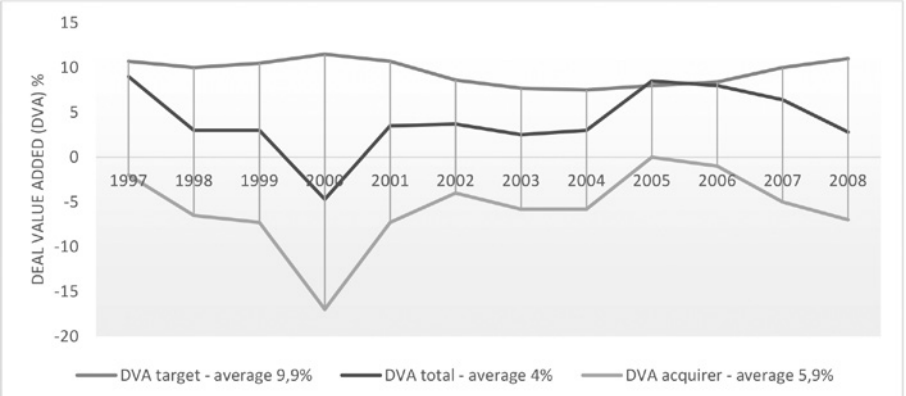
Reducing cross-border transactions, especially to financial markets of Central and Eastern Europe. This trend started in 2007, primarily as a result of the reduction in the number of attractive target banks and the impact of the global financial crisis. During 2009, the process of reducing cross-border mergers and acquisitions continued because of lack of liquidity, declining economic growth in the region, as well as the inability of acquisition banks to find affordable sources of funds to finance new transactions; and use of joint ventures and other alliances. Joint ventures flourished during the 2009, particularly in France.

The global financial crisis has had major impact on the financial sector in terms of reducing the value of total transactions. In total, financial services deals for which values were disclosed amounted to €80bn in 2009, compared to €17,8bn in 2008 and €208bn in 2007. [3]

Also, the global financial crisis had a major impact on reducing cross-border transactions and focusing on national transactions. In this period, were characteristic transactions of mergers and acquisitions in the financial sector as an activity of governments.

4. TRENDS IN DEAL VALUE ADDED DURING THE GLOBAL FINANCIAL CRISES

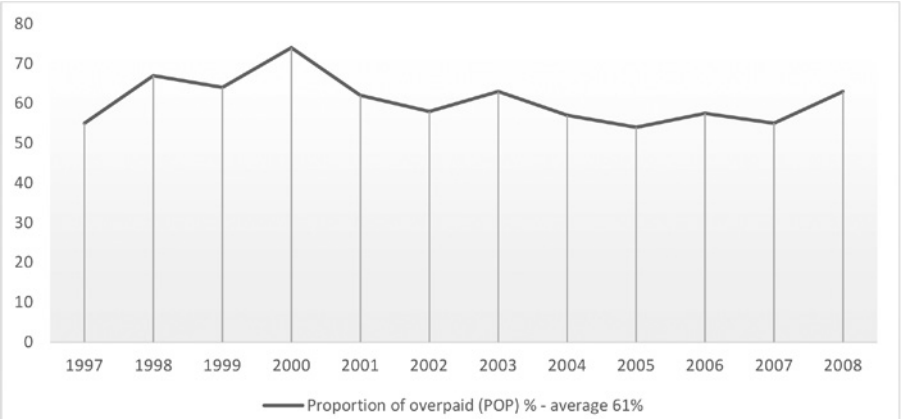
Typical of the period of global financial crises is that strategic buyers, showing discipline, didn't lose sight of value. In mergers and acquisitions booms, acquirers are often tempted to overpay, but not in this boom cycle: the value created by M&A increased consistently. The data about trends in deal value added are presented in Figure 2.



N. of contracts	90	126	139	133	89	39	49	78	93	154	239	116

Figure 2: Trends in deal value added. [4]

From the data can be concluded that some worrisome signs did emerge in 2008, however. In 2008, the average deal value added (DVA)—our proxy measure of the total value created for buyer and seller—had decreased from the 2007 level (6.4 percent), to 2.8 percent, which is below the long-term average of 4.0 percent. This decline resulted entirely from a sharp fall in the creation of value for acquirers; for targets, it even slightly increased in 2008 compared to previous years. To understand what has happened, you must look at the reaction of the market to deals—in particular, the proportion of them in which it thinks the acquirer overpaid. [4]
The data about overpaid of a target company are presented in Figure 3.



N. of contracts	90	126	139	133	89	39	49	78	93	154	239	116

Figure 3: Proportion of overpaid (POP) %, 1997 – 2008. [4]

The data shows that from 2004 to 2007, this figure hovered around 55 to 57 percent, below the long-term average of 61 percent. In 2008, however, it rose to 63 percent.

5. CONCLUSION

From the analysis of the processes of mergers and acquisitions of banks in conditions of financial crisis, it can be concluded that the uncertainty resulting from the financial crisis has not made a dramatic impact on decisions on mergers and acquisitions in the banking sector.

However, in turbulent conditions, when there is reduced efficiency of financial markets, which is manifested by lack of capital, it is normal that the priorities of the banks will be forwarded to achieving greater stability of their activities, providing business continuity and greater operational efficiency. Post-crisis period is a challenge for banks, because they have to contend with strict supervision of their activities, while building strategies for restoring the lost reputation and trust of customers.

For global financial institutions, a challenge will be to transform into simpler and more specialized institutions. If these institutions have deep roots in specialized businesses, they may choose to concentrate on certain activities. This process is already happening with Citibank, which is in the process of diverting their traditional activities to the activities of offering services to global corporations and transaction banking.

In the short term, is expected many banks to be transformed into small commercial banks that operate locally and regionally. Some large banks with extensive branch network through the

process of divestment will have the opportunity to remove the unsuccessful banking activities and will focus on parts of the market where they have profit. However, there are global banks such as, Barclays and BNP Paribas, which exploit the financial crisis as an advantage in pursuing its cross-border transactions of mergers and acquisitions.

The success of each financial institution is directly dependent on its long-term strategy. Determining the direction of future banking activities, long-term goals, focusing on specific market segments, form of organization and so on, are key determinants of the effectiveness and profitability of banking institutions.

Financial crises have a destructive character. They shake stability of financial systems and imbalance activities of financial markets. But there is always the other side of the coin that is the possibility of changing financial institutions. Namely, the financial crisis offers good lessons and experiences, and their corresponding application will open wider horizons of success of financial institutions. In the future, the strategic objectives of banks must follow the adequate vision of their work. The processes of mergers and acquisitions will represent the driving force that visions of the banks will turn into reality and will trace the path towards to their long-term goal (more effective, more flexible and more efficient banking operations).

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