THE ROLE OF ENTREPRENEURS
IN TOURISM DESTINATION MANAGEMENT SYSTEM:
A CONCEPTUAL MODEL

Petr Štumpf[1] (iD)
Jitka Mattyašovská[2] (iD)
Adriana Šťastná[3] (iD)

Abstract: *A tourism destination is defined as an open, complex and adaptive system in which numerous relations in the economic, social and environmental spheres are generated. This paper aims to define a conceptual model of tourism destination management as a complex system and to identify the role of entrepreneurs as key stakeholder in a tourism destination. The main methodological approaches were systems thinking and system dynamics. A Causal Loops Diagram (CLD) enabled to cover the complexity of the tourism system and to identify relations among a number of stakeholders and elements in a tourism destination. The authors identified crucial elements of the entrepreneur sub-system involved in a high number of causal loops to establish the importance of entrepreneurs in the destination management system. Profits of individual entrepreneurs and the occupancy of hospitality and tourism services represent the model's most frequent variables from the entrepreneurs' perspective.*

Keywords: *Destination management, System dynamics, Systems thinking, Causal loop diagram.*

1. INTRODUCTION

The use of the systemic approach in tourism originates from the fact that tourism destinations are considered complex systems (Baggio & Sainaghi, 2011; Kaspar, 1976; Laesser & Beritelli, 2013; Mai & Smith, 2018; Štumpf & Vojtko, 2016). According to the Sankt-Gallen consensus of destination management, destinations can be understood not only as geographic entities, clusters or networks of suppliers but also as productive social systems with specific business aims and non-business related goals (Laesser & Beritelli, 2013).

The systems theory is used as one of the essential approaches towards the study and management of the travel and tourism industry (Kaspar, 1976), especially in a specific environment of tourism destinations. Based on this theory, a tourism destination is defined as an open, complex and adaptive system, in which numerous relations in the economic, social and environmental spheres are generated. A tourism destination is considered as a dynamic complex system since it is composed of many different components that interact in a non-linear way (Baggio & Sainaghi, 2011; Mai & Smith, 2018). The tourism destination as a complex system is needed to be appropriately modelled to achieve efficient destination management (Bieger, 2008; Farrell & Twining-Ward, 2004; Lew & McKercher, 2006; Rodriguez-Diaz & Espino-Rodriguez, 2007).

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[1]   Faculty of Management, Prague University of Economics and Business, Jarošovská 1117/II, 377 01 Jindřichův Hradec, Czech Republic

[2]   Faculty of Management, Prague University of Economics and Business, Jarošovská 1117/II, 377 01 Jindřichův Hradec, Czech Republic

[3]   Faculty of Management, Prague University of Economics and Business, Jarošovská 1117/II, 377 01 Jindřichův Hradec, Czech Republic

The system also contains many stakeholders with completely different management objectives and interests (Mai & Smith, 2018; Štumpf & Vojtko, 2016), and it is influenced by various internal factors (such as policy, government regulation, socio-economic conditions) as well as external factors (such as the economic situation, safety and security, technological or environmental changes). It means that managing a tourism destination is uncertain, and destination managers have to make decisions in a complex environment (Mai & Smith, 2018).

In comparison to other methods that are often used for the evaluation of the economic impact of tourism on destinations, the system dynamics has one advantage – it can be operated at the same time with "soft" factors from the social and environmental spheres, non-linear relations, delays and causal loops (reinforcing or balancing) in one complex model (Sterman, 2000). Thus, we can observe stakeholders and general tourism development in destinations in a broader context with an emphasis on sustainability. The first system dynamics models were used for simulations in businesses (Forrester, 1961). However, system dynamics modelling enables to evaluate economic impacts as well as socio-cultural and environmental impacts and their mutual interactions (Jackson, 2003).

Several research studies have been published in the field of travel and tourism using system dynamics as the main theoretical approach. Schianetz et al. (2007) based on Senge's (1990) theory of Learning Organization present the concept of Learning Tourism Destination using the system dynamics as a tool for implementing and reinforcing collective learning processes. The results show that system dynamics methodology can support communication among crucial stakeholders in tourism destinations and stimulate organisational learning.

System dynamics in travel and tourism research is used by other researchers as well (Borštnar et al., 2011; Jere Jakulin, 2016, 2017; Lazanski & Kljajic, 2006; Mai & Smith, 2018; Patterson et al., 2004; Ropret et al., 2014; Sedarati et al., 2019; Štumpf & Vojtko, 2016; Tegegne et al., 2018; Vojtko & Volfová, 2015).

The tourism destination system involves a great number of stakeholders. One of the most significant stakeholders are the tourism enterprises that are regarded as the "backbone" of the tourism destination system. A destination in which tourism enterprises operate has a significant impact on the competitiveness of these enterprises and their performance. However, the opposite relation also applies. It means that the competitiveness of the destination is noticeably dependent on the competitiveness of the enterprises in the destination, in terms of each individual company and all companies in aggregate (Ritchie, 2003).

The ability to compete in the tourism market is, from the perspective of individual entrepreneurs, the subject of their interest; on the other hand, the competitiveness of the whole industry and aggregated results of the private sector in the destination are important for the public administration. Thus, the competitiveness of the whole destination should be in the spotlight of the destination management represented by destination management organisation (DMO).

The main ambition of this paper is to define a conceptual model of tourism destination management as a complex system and to identify the role of entrepreneurs as key stakeholder in a tourism destination. Therefore, we formulate the following research questions:

1) *What is the role of entrepreneurs in the complex destination management system?*
2) *What are the essential causalities of the entrepreneur sub-system?*

2. METHODS

The main methodological approaches were systems thinking and system dynamics. We built the model according to the previous studies based on system dynamics modelling, and according to the system dynamics methodology (Jackson, 2003). The first step consists of the identification of a research problem and variables which have a crucial influence on the defined problem. The variables create the boundaries of the system.

In the second step, a complex Causal Loops Diagram (CLD) of the destination management system was built. The CLD reveals interactions among the defined variables. Relations between the model, the object and the subject of the modelling were defined by Jere Lazanski & Kljajic (2006). Based on this approach, the object of our model was defined as the destination management system of a tourism destination. The subject of the model is then represented by the researchers (authors) as the observers/descriptors of the model.

As the third step, we built a specific entrepreneur sub-model in a simplified CLD based on the complex destination management system. Thus, we identified essential causal loops that influence entrepreneurs in complex destination management. In order to describe relations between the elements of the model, the CLD includes various feedback loops influencing the business activities of entrepreneurs within the destination management system. The loops can be both balancing and reinforcing, and the interconnections (arrows) are marked with positive (+) or negative polarity (-). The delay is marked by an interruption of the arrow (=).

Using Vensim Professional software, we were able to identify crucial elements of the system involved in a high number of causal loops to determine the importance of entrepreneurs in the destination management system. We used the function *LOOPS* for counting the number of causal loops in which the particular elements of the system are included.

In the following step, the CLD is usually converted in the mathematical simulation model and validated in comparison with real-world behaviour. We did not implement this step in the study since we aimed to build a conceptual model of the destination management system and to identify the role of entrepreneurs in this system. The dynamics of the system based on the data from various destinations is the way for future research. Therefore, our approach is in line with some system dynamics related disciplines, such as systems thinking (Senge, 1990).

3. RESULTS

In our model, the borders of the management destination system are defined by the fundamental activity of the most significant stakeholders (entrepreneurs within the tourism sector, public administration, visitors, residents). The stakeholders operating in the tourism destination have various interests that are frequently contradictory. DMO as a company of destination management stands in the centre of the whole system, and its role lies in the coordination of the interests with the aim to find an agreement which would achieve the satisfaction of the given stakeholder groups as well as the appraisal of economic, socio-culture, and environmental dependencies which are linked to a particular behaviour of stakeholders.

A conceptual model in the form of a CLD includes 57 variables, out of which 47 are endogenous and 10 exogenous (Figure 1).

3.1. The role of entrepreneurs in tourism destination management system

Entrepreneurs within tourism are represented by accommodation and catering providers, transportation companies, incoming travel agencies and tour operators, wellness facilities and spas, sports&leisure and cultural services providers, animators, tourist guides, and a number of other private business entities whose activities are directly or indirectly influenced by the visitors' occupancy in a destination. The main goal of private business entities is to gain a profit. Tourism is a sector that is "drawn by the offer", business entities operate in a highly competitive environment where, in general, supply exceeds demand. The system is even more complicated because not only business entities in a given destination compete but also the individual destinations in the domestic, international, and global market which are not, for the needs of this model, within the defined borders but they enter the system from the exterior as an *exogenous variable*.

Entrepreneurs mainly pursue their individual interests (individual profits), which primarily determines their satisfaction. If they are not satisfied with their individual economic result, they will search for a cause other than their own business abilities. It will result in a lack of confidence in the DMO's ability. But also, vice versa, if entrepreneurs are satisfied with their individual profits, the DMO's persuasive ability to sufficiently defend the interests of the business sector will be higher. The aggregate performance of all entrepreneurs in the destination will not be decisive for the satisfaction of individual entities since the results of each business unit may differ significantly from the overall results.

Individual profits (and profitability) of business entities influence the decisions made by new entities to enter the market. Such decisions may be significantly influenced by public consumption in the tourism sector within the destination; firstly, by building public infrastructure that will increase accessibility and attractiveness of the destination, and secondly, by direct support of business entities in tourism in the form of grants and subsidies. The entry of new enterprises increases the competition in the sector, which should positively impact the quality of services provided, the level of which will be increased by investments (in various forms). However, improving the quality of services means not only an increase in costs for business entities (modernisation of infrastructure, technological development, qualified human resources, etc.) but also an increase in visitor satisfaction, which may result in higher average spending, and thus, higher yield per visitor.

The entry of new entities into the market will cause not only an increase in competition (which also means better quality) but also an increase in the capacity of tourism facilities, which with the same or a slowly growing number of visitors (or overnight stays) will reduce the occupancy of these facilities resulting in lower sales. Moreover, the price level will decrease, which will positively affect the satisfaction of visitors (the destination will become cheaper for them). However, on the other hand, the yield per visitor will be lower, which will again have a negative impact on entrepreneurs' sales.

Business entities generate job opportunities, and thus, they help to reduce unemployment. Together with public budgets and the attractiveness of the destination's primary offer (cultural and natural potential), their performance determines the attractiveness of the environment (in terms of geography and sector) for future investments.
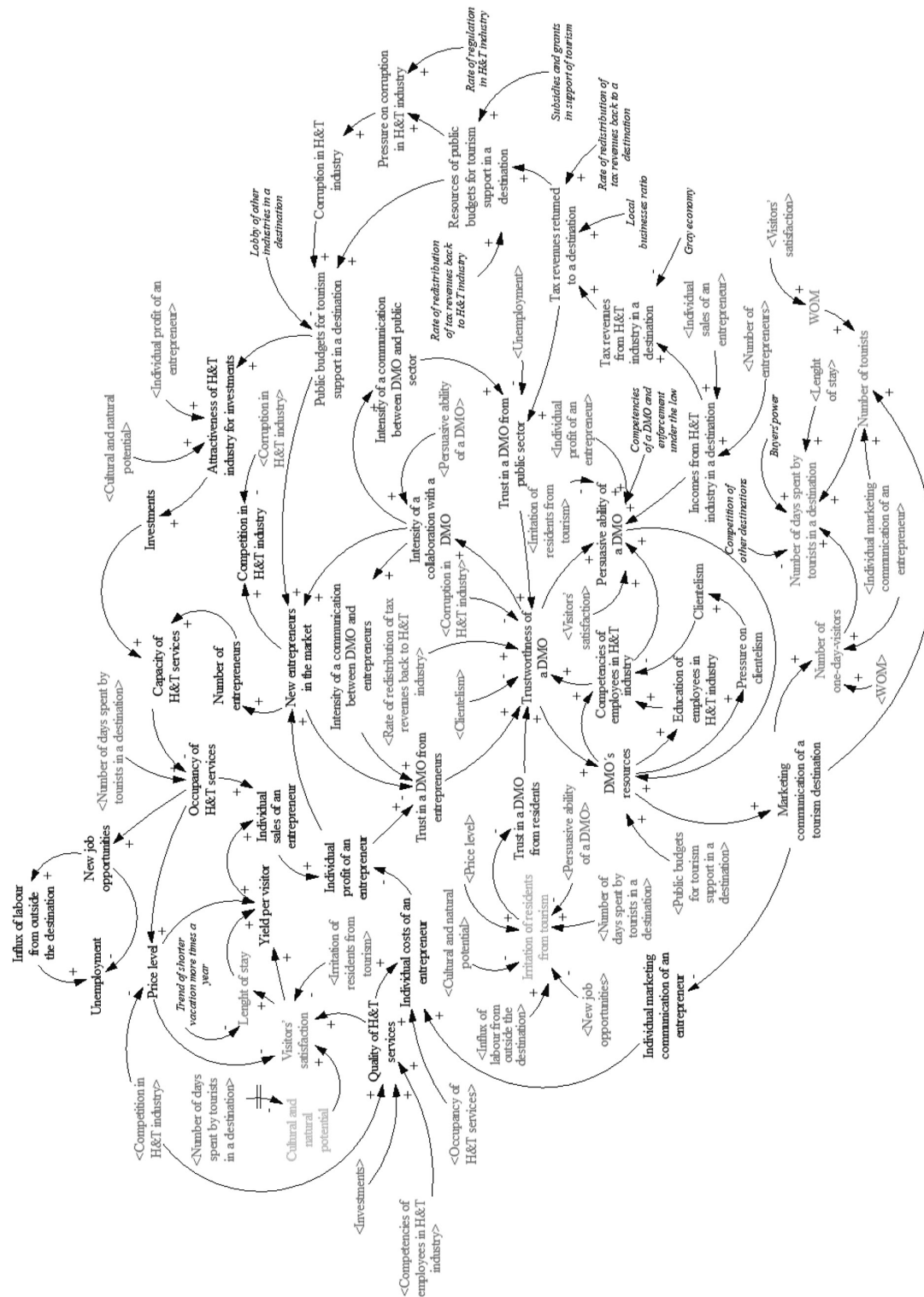
Figure 1. Tourism Destination System – Causal Loops Diagram

3.2. Causal loops affecting enterprises dynamics in the destination management system

Basic feedback loops that determine the dynamics of the model were identified from the perspective of entrepreneurs. The feedback loops may be either reinforcing (marked with R = reinforcing), or balancing (marked with B = balancing). Figure 2 depicts selected feedback loops that are integral to the above-mentioned causal loop diagram.
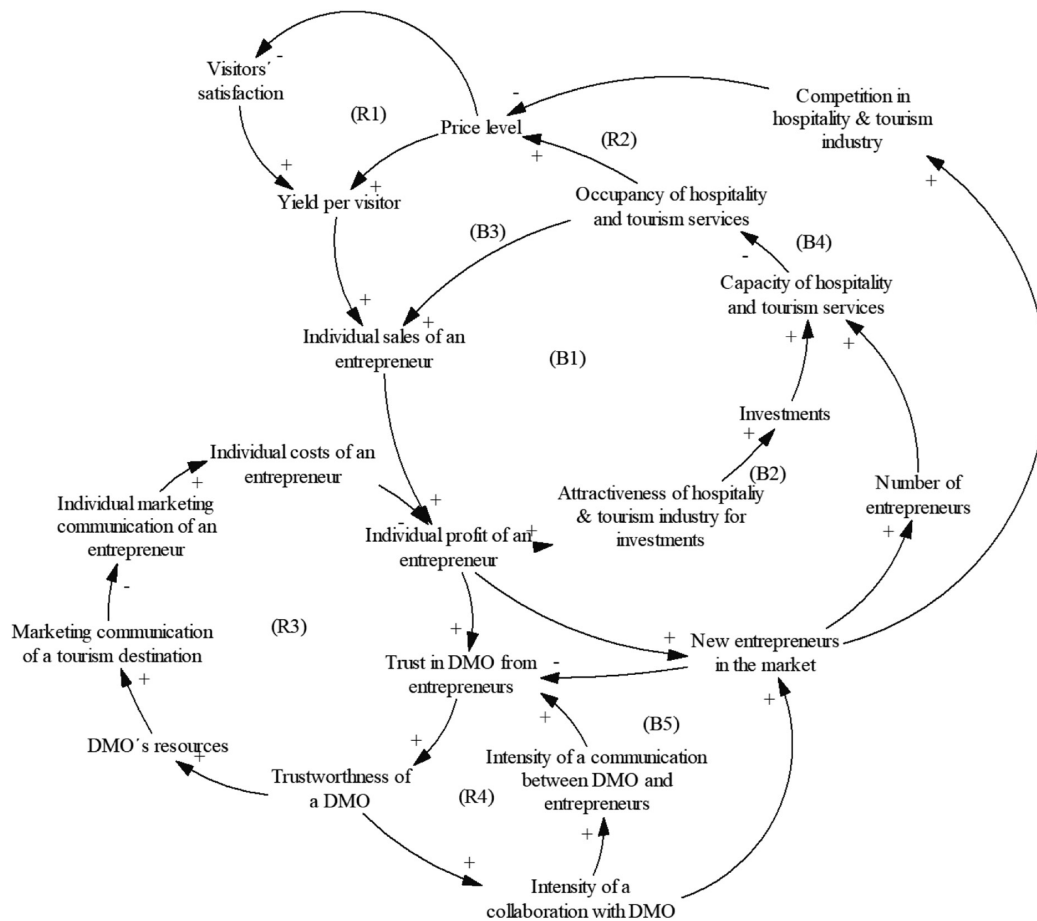
Figure 2. *Causal loops affecting enterprises dynamics in the destination management system*

B1 Balancing feedback loop determines the growth of the tourism sector from the perspective of quantity (capacity of the tourism services) based on investments. However, a higher capacity of tourism services, with the same number of visitors, will result in lower occupancy of tourism services.

B2 Balancing feedback loop determines the growth of the tourism sector from the perspective of quantity (capacity of the tourism services) based on the entry of new entrepreneurs into the market. A higher capacity of tourism services caused by a higher number of tourism services providers, with the same number of visitors, will result in lower occupancy of tourism services.

B3 Balancing loop includes, compared to the previous two relations (B1 and B2), the influence of the price level, which affects the yield per visitor, and thus, the individual sales and profits of entrepreneurs.

B4 Balancing feedback loop, where the increasing individual profit of an entrepreneur attracts new entrepreneurs to the sector; compared to the previous relations, this loop expresses competition that will grow with the entry of new business entities into the market. As a result, higher competition will put downward pressure on prices.

B5 Balancing feedback loop, in which, compared to all previous relations, the influence of DMO is already projected. If a DMO operates in a destination, higher individual profits of entrepreneurs will increase the trust in the DMO, and its trustworthiness in general. The DMO will cooperate more intensively, and its activities may attract new business entities into the sector. However, the entry of new business entities will pose a threat to the position of the existing enterprises in the destination, which might cause a decrease of trust in the DMO's activities from the part of such enterprises.

R1 Reinforcing feedback loop which includes the impact of visitors' satisfaction on the model's dynamics. Higher visitors' satisfaction causes higher yield per visitor, higher individual sales and entrepreneurs' profits, followed by higher capacities (from a number of new entities or the investment of the existing entities). Higher capacity will cause, with the constant number of visitors, lower occupancy of services and a decrease in prices. Lower prices will have a positive impact on visitor's satisfaction.

R2 Reinforcing feedback loop which includes the competition, in contrast to the previous relations, will grow with the entry of new business entities into the market. Greater competition will put downward pressure on prices, which will result in higher visitor's satisfaction.

R3 Reinforcing feedback loop in which DMO's activity is reflected. If a DMO operates in a destination, higher individual profits of entrepreneurs will increase the trust in the DMO, and its trustworthiness in general. A credible DMO is able to generate higher resources for its activity. Moreover, it will reinforce the marketing communication of the whole destination, which can lead to the savings of individual costs of business entities for marketing communication, and thus, the increase of their profits.

R4 Reinforcing feedback loop in which a higher intensity of communication between the DMO and entrepreneurs will increase the DMO's credibility as perceived by business entities. It will increase DMO's trustworthiness in general. If the DMO is trustworthy, entrepreneurs will be more willing to cooperate, and the intensity of cooperation will be higher.

The overview of all variables included in the CLD of the whole destination management system (Figure 1), including the number of feedback loops that contain the individual variables, is depicted in Table 1. The variables connected with the activities of business entities are in bold.

Table 1. Variables and Loops of the Tourism Destination System

Variable (endogenous / *exogenous*)	Number of Causal Loops
Attractiveness of H&T industry for investments	**22 468**
Price level	**7 626**
Tax revenues returned to a destination	20 616
Tax revenues from HT industry in a destination	17 533
Length of stay	1 093
Subsidies and grants in support of tourism	0
Trust in a DMO from residents	13 004
Trust in a DMO from entrepreneurs	16 302
Trust in a DMO from public sector	16 291
Trustworthiness of a DMO	32 766
Individual marketing communication of an entrepreneur	**336**
Individual costs of an entrepreneur	**21 277**
Individual sales of an entrepreneur	**12 092**
Individual profit of an entrepreneur	**32 766**
Intensity of a communication between DMO and entrepreneurs	3 677
Intensity of a communication between DMO and public sector	3 632
Intensity of a collaboration with a DMO	32 766
Investments	**30 276**
Irritation of residents from tourism	26 416
Capacity of H&T services	**30 439**
Clientelism	2 187
Competencies of a DMO and enforcement under the law	0
Competencies of employees in H&T	5 265
Competition of other destinations	0

Competition in H&T industry	**2 529**
Corruption in H&T industry	4 917
Buyers' power	0
Cultural and natural potential	b
Quality of H&T services	**14 171**
Lobby of other industries in a destination	0
Marketing communication of a tourism destination	307
Rate of redistribution of tax revenues back to a destination	0
Rate of redistribution of tax revenues back to H&T industry	0
Rate of regulation in H&T industry	0
Unemployment	**9 874**
New job opportunities	**4 232**
Number of one-day-visitors	2 833
Number of entrepreneurs	**4 734**
Number of days spent by tourists in a destination	6 967
Number of tourists	2 833
Local businesses ratio	0
Persuasive ability of a DMO	32 766
Incomes from H&T industry in a destination	22 591
Influx of labour from outside the destination	**4 208**
Visitors´ satisfaction	2 393
Grey economy	0
Pressure on clientelism	3 555
Pressure on corruption in H&T industry	4 502
Trend of shorter vacation more times a year	0
Public budgets for tourism support in a destination	5 473
New entrepreneurs in the market	**6 519**
Occupancy of HT services	**32 766**
Yield per visitor	**9 636**
Education of employees in H&T industry	1 1032
WOM	1 086
DMO´s resources	16 146
Resources of public budgets for tourism support in a destination	19 944

Source: Own calculation using Vensim Professional

From the enterprises' perspective, several variables in the model are included in a high number of causal loops. Using Vensim Professional software, we identified *Individual Profit of an Entrepreneur* and *Occupancy of Hospitality and Tourism Services* as the most frequent in the model (included in 32,766 causal loops). It indicates that the dynamics of the presented destination management system is closely connected with the main aims of enterprises.

To imagine the causality of the system, the causes tree of the *Individual Profit of an Entrepreneur* shows which variables affect the individual profits of entrepreneurs in the system (Figure 3). Moreover, the uses tree shows, which elements of the system are influenced by this variable (Figure 4).
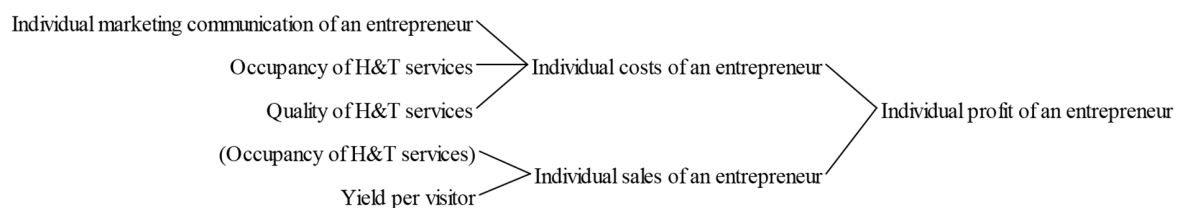

Figure 3. *Individual Profit of an Entrepreneur – Causes Tree*

Attractiveness of H&T industry for investments —— Investments

New entrepreneurs in the market < Competition in H&T industry
Number of entrepreneurs
(Trust in a DMO from entrepreneurs)

Individual profit of an entrepreneur <

Persuasive ability of a DMO < DMO´s resources
Intensity of a collaboration with a DMO
Irritation of residents from tourism

Trust in a DMO from entrepreneurs —— Trustworthness of a DMO
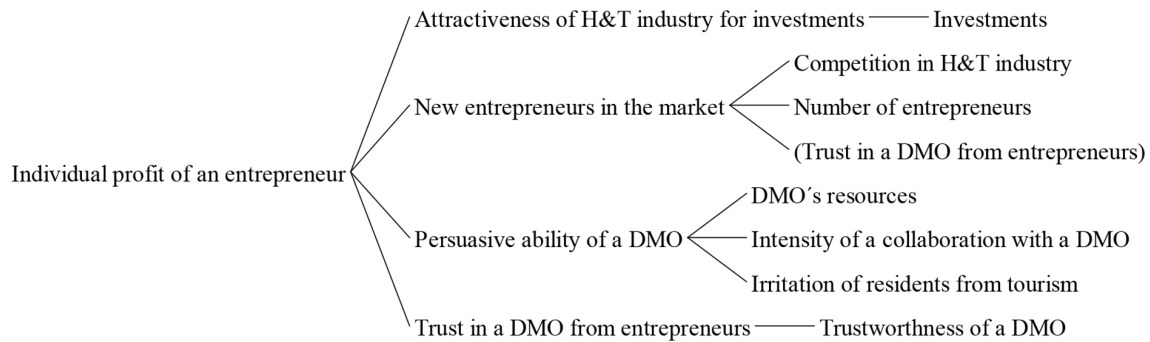
Figure 4. *Individual Profit of an Entrepreneur – Uses Tree*

Finally, other variables related to the enterprises' activities are included in a high number of causal loops (more than 10,000), such as Capacity of H&T services (30,439), Investments (30,276), Attractiveness of H&T industry for investments (22,468), Individual Costs of an entrepreneur (21,277), Quality of H&T services (14,171), or Individual Sales of an entrepreneur (12,092). Therefore, we can conclude that enterprises play a crucial role in destination management and create the core of the system.

4. FUTURE RESEARCH DIRECTIONS

A tourism destination is considered a dynamic complex system. Managing tourism destinations is uncertain, and destination managers have to make decisions in a complex environment, including a number of stakeholders with different management objectives and interests (Mai & Smith, 2018). System dynamics in travel and tourism research was used by a number of researchers (Borštnar et al., 2011; Jere Jakulin, 2016, 2017; Jere Lazanski and Kljajic, 2006; Mai and Smith, 2018; Patterson et al., 2004; Ropret et al., 2014; Sedarati et al., 2018; Štumpf and Vojtko, 2016; Tan, 2017; Tegegne et al., 2018; Vojtko and Volfová, 2015). Our study identifies the complexity of the destination management system and highlights the role of enterprises, supported by a number of causal loops in the system.

The proposed system dynamic model is considered a unique tool for DMOs to understand and deal with the soft systems and tourism development policies that determine the dynamics of the destination management system. Based on Jere Lazanski and Kljajic (2006), the proposed conceptual model was established by the authors as the observers/descriptors of the model. We can consider this fact as a limitation of the study since the model can suffer from the subjectivity of the authors to a certain extent. However, a conversion of the model into the Stock and Flows Diagram, which enables the calibration and simulation, will precise the model and represent the revenue for the future. Using simulations, destination management can focus business activities in destinations with a systematic explanation. The model will enable to simulate different combinations of policies, test their effectiveness, and find appropriate solutions.

The system dynamic models will be used for simulations of the travel and tourism industry in the post-COVID-19 era. The complex and system approaches will be much appreciated to understand the changing travel and tourism world and its dynamics.

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5. CONCLUSION

The systems approach and complex system dynamics modelling deserve more attention in future research, regarding social, environmental, and economic sustainability in tourism destinations. These methods represent the scientific tools that can provide balanced, optimal results to find a consensus among various stakeholders' aims in tourism destinations. The proposed model can explain the tourism destination management system in connection with the post-COVID-19 travel behaviour. This tourism crisis has shown an enormous and sudden drop in international travels and reduced business activities in the hospitality and tourism sector.

The dynamics of tourism and simulations of post-COVID-19 scenarios represent a big challenge for the future. The current situation outlines the necessity of a complex and systemic approach in managing tourism destinations. Therefore, we consider our conceptual model a useful tool for decision-making support and sustainable destination development in the post-COVID-19 era.

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REFERENCES

Baggio, R., & Sainaghi, R. (2011). Complex and chaotic tourism systems: Towards a quantitative approach. *International Journal of Contemporary Hospitality Management*, *23*(6), 840–861. https://doi.org/10.1108/09596111111153501

Bieger, T. (2008). *Management von Destinationen*. Oldenbourg.

Borštnar, M. K., Kljajić, M., Škraba, A., Kofjač, D., & Rajkovič, V. (2011). The relevance of facilitation in group decision making supported by a simulation model: The Relevance of Facilitation in Group Decision Making. *System Dynamics Review*, *27*(3), 270–293. https://doi.org/10.1002/sdr.460

Farrell, B. H., & Twining-Ward, L. (2004). Reconceptualizing Tourism. *Annals of Tourism Research*, *31*(2), 274–295. https://doi.org/10.1016/j.annals.2003.12.002

Forrester, J. W. (1961). *Industrial dynamics*. Productivity Press.

Jackson, M. C. (2003). *Systems thinking: Creative holism for managers*. John Wiley & Sons.

Jere Jakulin, T. (2016). System dynamics models as decision-making tools in agritourism. *Agricultura*, *13*(1–2). https://doi.org/10.1515/agricultura-2017-0002

Jere Jakulin, T. (2017). Systems Approach to Tourism: A Methodology for Defining Complex Tourism System. *Organizacija*, *50*(3). https://doi.org/10.1515/orga-2017-0015

Jere Lazanski, T., & Kljajic, M. (2006). Systems approach to complex systems modelling with special regards to tourism. *Kybernetes*, *35*(7/8), 1048–1058. https://doi.org/10.1108/03684920610684779

Kaspar, C. (1976). Le tourisme, objet d'étude scientifique. *The Tourist Review*, *31*(4), 2–5. https://doi.org/10.1108/eb057735

Laesser, C., & Beritelli, P. (2013). St. Gallen Consensus on Destination Management. *Journal of Destination Marketing & Management*, *2*(1), 46–49. https://doi.org/10.1016/j.jdmm.2012.11.003

Lew, A., & McKercher, B. (2006). Modeling Tourist Movements. *Annals of Tourism Research*, *33*(2), 403–423. https://doi.org/10.1016/j.annals.2005.12.002

Mai, T., & Smith, C. (2018). Scenario-based planning for tourism development using system dynamic modelling: A case study of Cat Ba Island, Vietnam. *Tourism Management*, *68*, 336–354. https://doi.org/10.1016/j.tourman.2018.04.005

Patterson, T., Gulden, T., Cousins, K., & Kraev, E. (2004). Integrating environmental, social and economic systems: A dynamic model of tourism in Dominica. *Ecological Modelling*, *175*(2), 121–136. https://doi.org/10.1016/j.ecolmodel.2003.09.033

Ritchie, J. R. B. (2003). *The competitive destination: A sustainable tourism perspective*. CABI Pub.

Rodriguez-Diaz, M., & Espino-Rodriguez, T. F. (2007). A Model of Strategic Evaluation of a Tourism Destination Based on Internal and Relational Capabilities. *Journal of Travel Research*, *46*(4), 368–380. https://doi.org/10.1177/0047287507308324

Ropret, M., Jere Jakulin, T., & Likar, B. (2014). The systems approach to the improvement of innovation in Slovenian tourism. *Kybernetes*, *43*(3/4), 427–444. https://doi.org/10.1108/K-07-2013-0154

Schianetz, K., Kavanagh, L., & Lockington, D. (2007). The Learning Tourism Destination: The potential of a learning organisation approach for improving the sustainability of tourism destinations. *Tourism Management*, *28*(6), 1485–1496. https://doi.org/10.1016/j.tourman.2007.01.012

Sedarati, P., Santos, S., & Pintassilgo, P. (2019). System Dynamics in Tourism Planning and Development. *Tourism Planning & Development*, *16*(3), 256–280. https://doi.org/10.1080/21568316.2018.1436586

Senge, P. M. (1990). *The fifth discipline: The art and practice of the learning organization* (1st ed.). Doubleday/Currency.

Sterman, J. (2000). *Business dynamics: Systems thinking and modeling for a complex world*. Irwin/McGraw-Hill.

Štumpf, P., & Vojtko, V. (2016). The System Dynamics Model for Support of the Destination Management in South Bohemia. *Business Trends*, *6*(4), 43–61.

Tegegne, W. A., Moyle, B. D., & Becken, S. (2018). A qualitative system dynamics approach to understanding destination image. *Journal of Destination Marketing & Management*, *8*, 14–22. https://doi.org/10.1016/j.jdmm.2016.09.001

Vojtko, V., & Volfová, H. (2015). Regional Sustainable Tourism—A System Dynamic Perspective. In *Tourism & Hospitality—Sustainability and responsibility*. Profess Consulting.