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Leverage points of tourism destination competitiveness dynamics

Martin Lušťický *, Petr Štumpf

Prague University of Economics and Business, Faculty of Management, 1117 Jarošovská Str., 37701 Jindřichův Hradec, Czech Republic

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ABSTRACT

Tourism destination comprises a highly competitive and complex market. This paper integrates the principal factors of destination competitiveness into the Aggregated Model. Using the Analytic Hierarchy Process, it examines the impact of stakeholders' activities on the principal factors and related sub-factors. It identifies the factors which can be considerably influenced by stakeholders' activities and thus have the potential to become the leverage points of destination competitiveness. However, destination competitiveness is a multi-dimensional concept covering complex relations among the factors of competitiveness. The study exposes such relations by developing a systemic model. It identifies three leverage points that influence the highest number of interrelations in the model. Destination managers can use these points to improve destination competitiveness and its dynamics by focusing cooperation activities with local stakeholders on *gathering data and conducting research*, *undertaking marketing activities*, and *creating the destination image*.

1. Introduction

Countless research papers have focused on different issues related to destination competitiveness. We can distinguish two broad categories: (a) the empirical papers focusing on analyzing the competitive position of particular tourism destination(s) (Añaña, Rodrigues, & Flores, 2018; Chin & Hampton, 2020; Dwyer, Livaic, & Mellor, 2003; Gomezelj & Mihalič, 2008; Kovalov, Burlakova, & Voronenko, 2017; Pavlović & Čavlin, 2014; Reisinger, Michael, & Hayes, 2018; Valeri, 2015; Yasin, Alavi, Koubida, & Small, 2011); (b) the conceptual papers aiming at analyzing destination competitiveness in general way (Berdo, 2015; Croes, 2010; Croes & Kubickova, 2013; Crouch, 2010; De Keyser & Vanhove, 1994; Dwyer & Kim, 2003; Goffi, 2013; Gupta & Singh, 2019; Hassan, 2000; Kaleji, Hesam, & Kazemi, 2017; Mazanec, Wober, & Zins, 2007; Nadalipour & Eftekhari, 2019; Ritchie & Crouch, 2003).

This paper focuses on general models of destination competitiveness. It tracks the application of models in research practice and reveals some weak points of current research in this field. Recent models of destination competitiveness are essentially based on extensive sets of factors that are strictly classified into predefined categories. However, as Crouch (2010) points out, many of the factors are multi-dimensional, abstract, or inaccurate. The multi-dimensional character of competitiveness factors is evident when we track the evolution of models starting with two most-cited models of Ritchie and Crouch (2003), and Dwyer and Kim (2003) and continuing with many of their followers (Du Plessis, Saayman, & van der Merwe, 2017; Enright & Newton, 2005; Goffi, 2013; Gomezelj & Mihalič, 2008; Kaleji et al., 2017). The models differ not only in the number of factors used for destination competitiveness assessment but also in the classification and interpretation of relations among these factors. Such variety shows how complex relations among the factors are. It indicates that some of the factors can hardly be categorized into one single category considering that destination competitiveness is a complex, multi-dimensional and relative concept (Craigwell, 2007). Thus, the static structure of the models, which does not correspond with the complex nature of tourism destinations, represents the research gap in the field of destination competitiveness research.

Moreover, the models present the factors in a descriptive form, but do not provide practical and applicable guidelines for action. They do not provide destination managers with essential information on how to influence the factors of competitiveness by stakeholders' activities and with guidelines on how to manage the factors and their relations by cooperation activities to enhance the competitive position of a destination. The limited practical implications of the models, which are not able to cover relations among the factors of competitiveness, represent the next research gap.

The primary research aim of the paper is to identify such factors of competitiveness that can be considerably influenced by stakeholders' activities and thus have the potential to become leverage points of destination competitiveness when taking its dynamics into

* Corresponding author.
E-mail addresses: martin.lusticky@vse.cz (M. Lušťický), petr.stumpf@vse.cz (P. Štumpf).

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consideration. The paper develops a systemic model of destination competitiveness covering complex relations among various competitiveness factors. Such a model should enable identification of the leverage points affecting the dynamics of destination competitiveness. The model should help destination managers to enhance destination competitiveness more effectively by focusing cooperation activities with destination stakeholders on strengthening of the leverage points.

The ambition of our study is to answer the following research questions:

1. What are the leverage points affecting the dynamics of tourism destination competitiveness?
2. How can the leverage points be used by destination managers to enhance the competitive position of tourism destinations via cooperation activities?

2. Literature review

Tourism destinations operate in a global environment in which the competitive pressure has been rising. Thus, managing destination competitiveness has become a challenging task (Goffi, 2013). Nevertheless, the enhancement of destination competitiveness is widely considered to be a vital condition for obtaining tourism benefits and, consequently, for enhancing the residents' quality of life (Chin & Hampton, 2020; Ivanov & Ivanova, 2016; Morrison, 2013; Page & Connell, 2009; Ritchie & Crouch, 2003). Tourism researchers have been trying to find a way in which destination competitiveness can be conceptualized using different models.

2.1. Tourism destination competitiveness models

Ritchie and Crouch (2003, p. 2) describe competitiveness as "*the ability to increase tourism expenditure, to increasingly attract visitors while providing them with satisfying, memorable experiences and to do so in a profitable way, while enhancing the well-being of destination residents and preserving the natural capital of the destination for future generations.*"

Following such a socio-economic approach, dozens of different models have been created (Enright & Newton, 2005; Gomezelj, 2006; Gomezelj & Mihalič, 2008; Balan et al., 2009; Crouch, 2010; Mechinda et al., 2010; Croitoru, 2011; Zhang et al., 2011; Bigovic, 2012; Armenski et al., 2012; Dragićević et al., 2012; Vodeb, 2012; Bagarić & Žitinić, 2013; Goffi, 2013; Štetić et al., 2014; Jovanović et al., 2014; Pulido-Fernandez et al., 2014; Mahika et al., 2014; Dorta-Afonso & Hernández-Martín, 2015; Chin et al., 2016; Topolansky Barbe et al., 2016; Du Plessis et al., 2017; Kaleji et al., 2017; Kovalov et al., 2017; Krstić et al., 2017; Bulatović et al., 2018; Añaña et al., 2018; Popescu et al., 2018). Even though some authors based their research on the World Economic Forum aggregate index of country competitiveness or more recent models, two conceptual models hold a dominant position: (a) the Conceptual Model of Destination Competitiveness developed by Ritchie and Crouch between 1993 and 1999 and redesigned in 2003; and (b) the Integrated Model of Destination Competitiveness developed by Dwyer and Kim and applied by Dwyer, Livaic and Mellor in 2003.

The Conceptual Model of Destination Competitiveness (CM) is the most widespread model of destination competitiveness. The model distinguishes 36 attributes of competitiveness grouped into five key categories: (A) *supporting factors and resources*; (B) *core resources and attractions*; (C) *destination management*; (D) *destination policy, planning, and development*; and (E) *qualifying and amplifying determinants*. The authors also underline the importance of the external environment of the destination, such as the global macro environment and the competitive microenvironment.

The Integrated Model of Destination Competitiveness (IM) combines elements of competitiveness of countries and companies with destination competitiveness into one overall model. The integrated model classifies the determinants of destination competitiveness under the following six groups: (F) *inherited resources*; (G) *created resources*; (H) *supporting factors and resources*; (I) *situational conditions*; (J) *destination management*; and (K) *demand conditions*.

Table 1 in the Appendix section contains references to 19 papers that refer to both the CM and the IM. The table shows the total number of factors that the particular research paper used for assessing destination competitiveness (the destination competitiveness factors – DCF). The table also shows the number of factors that have been directly derived from the CM and the IM (shown as letters A-E for the CM and letters F-K for the IM). Thus, it indicates the intensity of the models' usage in research practice. Additional factors not reflected in these models are shown in the last column.

The factors of *core resources and attraction / inherited + created resources* represent various sub-factors such as historical sites, culture, nightlife, sport events etc. They are considered as the factors of primary importance; they form the basic reasons why tourists choose a particular destination (Crouch, 2010; Dwyer & Kim, 2003; Goeldner & Ritchie, 2012). These factors have the tightest relations to destination attractiveness and, as such, heavily influence the success of the destination in a tourism market (Goeldner & Ritchie, 2012). The next internal factors which have been intensively examined by the research papers are *supporting resources* and *acceleration factors* (*qualifying and amplifying determinants*). These factors have the ability to strengthen or weaken the impact of other factors of competitiveness, especially the impact of *destination resources*. They make the internal environment complete and influence the destination's attractiveness. The factors consist of various sub-factors such as location/accessibility, safety, hospitality, the price level, infrastructure, or the quality of services.

Other significant factors are related to *destination management & planning*. As Goffi (2013) notes, planning process elaborates a framework for tourism development in a long-term horizon, and destination management deals with concrete tasks related to tourism development in a short-term horizon in order to meet strategic aims and the vision. *Destination management* affects the quality and quantity of *core resources and attractions* as well as *supporting resources* and *acceleration factors*, according to the *demand* and *situational conditions* to increase the attractiveness of the tourism destination (Goeldner & Ritchie, 2012; Morrison, 2013; Page, 2013). Thus, destination management represents a key mechanism for influencing destination competitiveness and sustainability (Kozak & Baloglu, 2011). *Destination management* is a complex factor; it comprises of destination management organization and many activities such as planning, information gathering, research, resource management, visitor management, crisis management, and destination marketing management.

The IM incorporates two external factors related to the tourist demand side. The factor of *situational conditions* can moderate or enhance the destination's competitive position in general. It includes factors such as macro and micro tourism trends and competitive pressure. The *demand conditions* comprise of the main elements forming tourism demand: destination awareness, perception, and preferences.

Inspired by Gomezelj (2006) and Goffi (2013), this study integrates the main factors influencing destination competitiveness into an Aggregate Model, which is depicted in Fig. 1.

2.2. Systemic approach to managing tourism destinations

A tourism destination can be defined and analyzed from several viewpoints. Pearce (2014) identified the key elements of five major sets of concepts used to depict and analyze destinations: (1) industrial districts; (2) clusters; (3) networks; (4) systems; and (5) social constructs; and grouped them under three major dimensions – geographic, mode of production, and dynamic.

The systems theory is one approach to studying and managing the travel and tourism industry. The use of the systemic approach originates from the fact that destinations are open, complex, and adaptive systems that generate numerous relationships in the economic, social, and

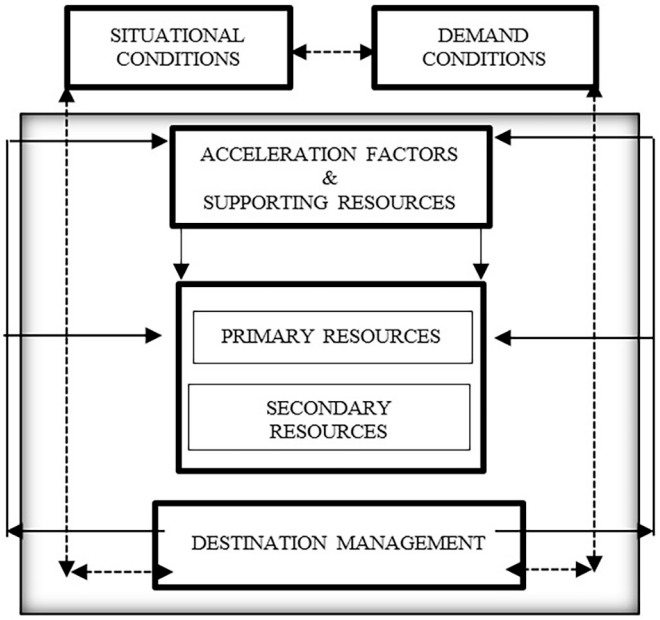

Fig. 1. The aggregate model of destination competitiveness.

environmental spheres (Baggio & Sainaghi, 2011; Laesser & Beritelli, 2013;Mai & Smith, 2018 ; Štumpf & Vojtko, 2016). Tourism destinations are dynamic complex systems because they are composed of many different components that interact in a non-linear way (Baggio & Sainaghi, 2011; Mai & Smith, 2018).

The system contains many stakeholders with totally different management objectives and interests (Mai & Smith, 2018; Štumpf & Vojtko, 2016). Moreover, it is influenced by various internal factors, such as destination resources, marketing activities, and the quality of services as well as external factors, such as the economic situation, safety and security, and technological or environmental changes. This means that managing a tourism destination is uncertain, and destination managers must make decisions in a complex environment (Mai & Smith, 2018). Therefore, system dynamics models can be used as a supporting tool for making strategic decisions in tourism.

Schianetz, Kavanagh, and Lockington (2007) built the concept of Learning Tourism Destination based on the theory of learning organization by Senge (1990), and the adaptive management of Holling (1978). Their concept consists of the following primary parts, which are closely interconnected: (1) shared vision and goals; (2) information system; (3) continuous learning and cooperative research; (4) cooperation (informal collaboration); (5) coordination (formal collaboration); (6) cultural exchange; (7) participative planning and decision making; and (8) adaptive management. Their findings show that system dynamics modeling encourages destination stakeholders to engage in tourism development, as they see themselves as an important part of the system. Their results also demonstrate that formal and informal collaboration enhances the competitiveness and sustainability of tourism destinations.

System dynamics have already been used by various researchers in the travel and tourism sector (Jere Jakulin, 2016; Mai & Smith, 2018; Sedarati, Santos, & Pintassilgo, 2018; Štumpf & Vojtko, 2016; Tan, 2017; Tegegne, Moyle, & Becken, 2018). However, none of their models have attempted to explain the dynamic of destination competitiveness.

2.3. Stakeholder collaboration & destination competitiveness

The term *stakeholder* was defined by Freeman as "*any group or individual who can affect or is affected by the achievement of the organization's objectives*" (Freeman, 1984, p. 46). This classical definition has been modified many times. The tourism and hospitality sector is not an exception. Although there are many various definitions in the literature, destination stakeholders can be broadly defined as groups or individuals "*that have a direct or indirect interest in the management of a destination for tourism*" (Morrison, 2013, p. 23). Presenza et al. (2005, p. 9) used a more precise definition; they defined stakeholders as "*any entity that is influenced by, or that may influence, the achievement of the destination management activities*".

When applying the stakeholder theory to the field of tourism destination, many types of stakeholder classification can be found. Sheehan and Ritchie (2005) define destination stakeholders as local, regional, and national tourism associations, accommodation facilities, hospitality facilities, tourist attractions, congress centers, residents, and universities. Bieger and Beritelli (2012) define stakeholders from a wider perspective as destination management organizations, hotels, and other accommodation facilities, residents, visitors, environmental associations, merchants, mountain transport operators, employees, shareholders, political parties, local authorities, and suppliers. In contrast, Bornhorst, Ritchie, and Sheehan (2010) involve in their survey only those stakeholders "who would be aware of a DMO and potentially participate in its activities" (p. 582), i.e., local politicians, providers of tourist services, owners of accommodation facilities and tourist attractions, and representatives of DMOs and chambers of commerce. Gajdošík, Gajdošíková, Maráková, and Borseková (2017) summarize some previous research studies and develop a set of 12 stakeholder types within three broad categories: public-private, public, and private.

Many authors stress the importance of stakeholder collaboration for reaching a sustainable competitive position and maintaining sustainable tourism development (Aas, Ladkin, & Fletcher, 2005; Hall, 2008; Bahar & Kozak, 2008; Byrd, Bosley, & Dronberger, 2009; Morrison, 2013; Waligo, Clarke, & Hawkins, 2013). However, managing tourism destination in cooperation with stakeholders is an extremely difficult and challenging task (Buhalis, 2000). Aas et al. (2005) summarize a number of challenges, such as increased costs of management processes, difficult identification of legitimate stakeholders, and the stakeholders' limited capacity to participate. In addition, tourism is an open, multidimensional industry with a fragmented nature. A large number of stakeholder groups with various interests, complex mutual relations, and different willingness to co-operate occur in a destination. Nevertheless, destination management organizations (DMOs) should not resign from this task when managing a tourism destination and its competitiveness in the tourism market.

As Pechlaner, Volgerr, and Herntrei (2012) state, one of the primary roles of DMOs is to coordinate stakeholder activities so that they are coherent with destination strategy for sustainable tourism development. DMOs should constantly manage, develop, and professionalize stakeholder collaboration in order to reach destination competitiveness because destinations are dynamic in nature and develop over a certain period (Zehrer & Hallmann, 2015). From the viewpoint of destination policymakers, cooperation between public and private sectors is one of the main attributes of destination competitiveness (Goffi, Cucculelli, & Masiero, 2019). Moreover, destination managers must serve as regulatory bodies that manage stakeholder relationships to ensure that benefits and responsibilities are fairly shared (Roxas, Rivera, & Gutierrez, 2020).

To understand and effectively manage stakeholder collaboration is also essential for regional destination branding (Perkins, Khoo-Lattimore, & Arcodia, 2020). Regarding the multi-stakeholder market-oriented approach to destination marketing, Line and Wang (2017) state that without the cooperation of key industry stakeholders, DMOs are severely limited in their ability to build a destination-wide brand and to improve the competitive position in the tourism market.

3. Methodology

The study uses the Analytic Hierarchy Process (AHP), which was developed by Saaty in the 1970s and still serves as a popular multi-

criteria decision-making method. It is based on a hierarchical structure of criteria. The weights of criteria are assessed by experts (respondents) on a pre-defined scale. Each respondent has to compare the relative importance of two criteria in a specially designed questionnaire. Thus, the AHP provides a comprehensive framework for structuring a decision problem, for quantifying its items, and for evaluating the best solution and its alternatives.

A detailed description of the Analytic Hierarchy Process methodology is beyond the extent of this paper. It can be found in Saaty and Vargas (2001), or Bhushan and Rai (2004). This study uses the AHP methodology consisting of the four main steps described by Tzeng and Huang (2011):

1. Setting up a hierarchical system of criteria and sub-criteria
2. Pairwise comparison of criteria and sub-criteria on Saaty's scale of relative importance
3. Organizing pairwise comparisons into Saaty's square matrix
4. Calculating the normalized vector of weights $w = (w_1, \ldots, w_n)$, in which every *i-th* element represents the importance of the *i-th* criterion.

Fig. 2 depicts a structure of the survey based on the two-level hierarchical system of criteria and sub-criteria, which were derived from the Aggregate Model of Destination Competitiveness. The limited number of sub-criteria respects the highly demanding need for a pairwise comparison among all the sub-criteria within a particular criterion.

The pairwise comparison was made through structured interviews with representatives of main stakeholder groups in four small towns located in the Czech Canada Tourism Destination, the Czech Republic: Jindrichuv Hradec (number of inhabitants: 21,445), Dacice (7325), Nova Bystrice (3281), and Slavonice (2386). This data collection method can be found in many studies (Dyer, Gursoy, Sharma, & Carter, 2007; Sinclair-Maragh, Gursoy, & Vieregge, 2015; Stylidis, Biran, Sit, & Szivas, 2014). Structured interviews enable researchers to explain all information about the study to respondents, to react to respondents' questions, and to ensure that respondents' answers are clearly understood.

The set of stakeholders is compiled as follows: (S1) owners of accommodation facilities (hotels & guest houses); (S2) owners of tourist attractions; (S3) providers of tourist services; (S4) representatives of tourist guides and information centers; (S5) representatives of local government (departments of municipal offices responsible for tourism and city development). This categorization fully reflects four characteristics of useful segmentation of stakeholders listed by (Kotler & Amstrong, 2006; Morrit, 2007) : (a) *measurability*, (b) *accessibility*, (c) *substantiality*, and (d) *actionability*.

Following the research approach of Bornhorst et al. (2010) and Gajdošík et al. (2017), the study focuses solely on external stakeholders of local DMOs that have a form of private, public, or public-private organizations actively participating in a DMOs' network. The study considers such stakeholders to be a primary ones, i.e., stakeholders without whose participation the organization cannot survive (Clarkson, 1995), or who are intensely involved and engaged (Reid, 2006) in tourism development in a destination. Thus, the study excludes individuals, such as residents and visitors. These stakeholders participate in tourism development rather indirectly and do not fully meet the criterion of *actionability*. They also do not fully meet the criteria of *measurability* and *substantiality* as it is difficult to estimate the total number of visitors in open destinations (cities) and involve a representative number of visitors and residents into the survey. Moreover, the study also excludes DMOs themselves; stakeholder management is considered to be an integral part of their activities.

The sampling frame of potential respondents was created with the help of a public database of the Czech Statistical Office and destination websites. After that, the set was reduced to a representative sample under these criteria: (a) the respondent represents an organization that plays a role of the external stakeholder for a local DMO; (b) the respondent represents an organization which has operated in the local market for at least three years; and (c) the respondent has at least three-year work experience as a top or middle manager. These criteria considerably increase the credibility of the respondents's answers.

Table 2 in the Appendix shows the numbers of respondents in each destination and the survey coverage ratio. The coverage ratio is the ratio of the total number of stakeholders in a particular stakeholder group to the number of respondents involved in the survey. Although the absolute number of respondents is quite small, the survey has validity with the total average coverage ratio of 70.5%.

The respondents assess their influence on each pair of criteria at the same hierarchical level. The term *influence* correlates with the attribute of *power,* which can be described as the ability of a stakeholder to contribute to the positive development of a particular factor or subject (Bryson, 2004). The respondents indicate the relative importance of factor A over factor B based on their ability to contribute to the positive development of the factors. They assign a corresponding number of

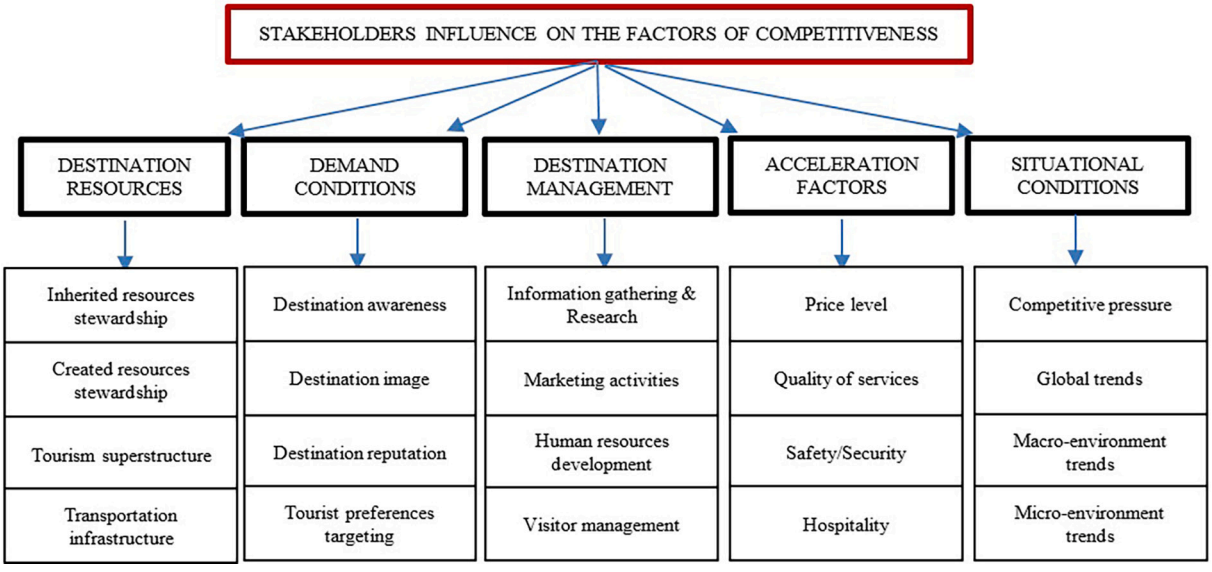

Fig. 2. The survey hierarchical system.

points using the scale described in Saaty and Vargas (2001), or Saaty (2008).

To achieve the primary research aim, the paper uses the systems approach and the system dynamics in the form of the causal loops diagram (CLD). The use of systems approach reflects the fact that tourism destinations are open, complex, dynamic, and adaptive systems that generate numerous relationships among many different components that interact in a non-linear way (Baggio & Sainaghi, 2011; Laesser & Beritelli, 2013; Mai & Smith, 2018; Štumpf & Vojtko, 2016).

Tourism destinations as a complex system are responding to both the internal and external factors, such as social, environmental, and economic change (Baggio & Sainaghi, 2011). The complexity of the system comes from diverse and multiple interconnected system elements. System dynamics modelling provides a comprehensive approach to model complex, dynamic, and interdependent variables (Tegegne et al., 2018). The casual loop diagram represents the feedback structure of systems and enables to depict the system of tourism destination with its complex relations. Sterman (2000) notes the CLDs are excellent for quickly capturing hypotheses about the causes of dynamics or for eliciting and capturing the mental models of individuals or teams.

In our research paper the essential construct of the CLD comes from the AHP results. Only the factors with the highest level of intensity represent the variables of the model and create the boundaries of the system. As Sterman (2000) notes, to be useful, the model must address a specific problem and must simplify rather than attempt to mirror an entire system in detail. Thus, the paper develops the dynamic model of destination competitiveness that decomposes the complex relations between the factors of competitiveness into a well-arranged scheme. The specific problem (the object of the model) is defined as the dynamics of destination competitiveness in relation with stakeholders' ability to influence the key factors of competitiveness. The subject of the model is then represented by authors as the observers / descriptors of the model, with a subjective view on the problem, to a certain extent (Jere Lazanski & Kljajic, 2006).

The Vensim PLE software, which was used for development of the CLD, has a function of counting the number of causal loops in which the second-level factors of competitiveness are included. The complexity of the model can be determined by the number of feedbacks. Bureš (2017) considers this indicator suitable for the system dynamics models as it is practically impossible to achieve this manually due to the overwhelming complexity.

This study considers the factors with the highest number of loops as the leverage points of destination competitiveness. These factors can influence the highest number of feedback loops in the model and thus have the highest potential to influence the dynamics of destination competitiveness. Destination managers can focus cooperation activities on the leverage points for improving the destination's competitive position more effectively.

4. Findings

The following part comprehensively describes the results of the study. Fig. 3 shows the results of the pairwise comparison made by stakeholders in all the examined destinations. The figure aggregates the normalized vector of weights for all criteria and sub-criteria by the mean scores. The normalized vector of weights numerically represents the intensity of stakeholder influence on the factors of competitiveness, i.e., their ability to contribute to the positive development of the factors (see the description of the AHP application in Section 3). The detailed results can be found in Table 3 and Table 4 in the Appendix.

The mean scores are calculated by a four-dimensional matrix **A** with elements $a_{ijk\ell}$, where index i denotes a criterion (C.1 to C.5), index j denotes its sub-criterion, index k encodes one of the four cities (1 = Jindrichuv Hradec, 2 = Dacice, 3 = Nova Bystrice, and 4 = Slavonice) and, finally, index ℓ stands for destination stakeholders (S1 to S5).

The mean value for each sub-criterion denoted as $\overline{c_{ij}}$ is computed by averaging over indices k and ℓ resulting in the formula:

$$\overline{c_{ij}} = \frac{1}{4 \cdot 5} \sum_{k=1}^{4} \sum_{\ell=1}^{5} a_{ijk\ell}$$

Similarly, the mean values of each criterion for particular stakeholder S1 … S5 denoted as $\overline{d_{i\ell}}$ is computed by summation over sub-criteria (index j) together with averaging over cities (index k) resulting in the formula:

$$\overline{d_{i\ell}} = \frac{1}{4} \sum_{j=1}^{4} \sum_{k=1}^{4} a_{ijk\ell}.$$

The research results show the different impact of stakeholders' activities on the key factors of competitiveness. The intensity of the impact on *destination resources* depends on the stakeholders' primary business and non-business activities. Owners of accommodation facilities and tourist attractions, and providers of tourist services can positively influence the *quality of tourism superstructure* and *created resources* in some cases. Local government plays an important role in building the *transportation infrastructure*. On the other hand, the representatives of tourist guides and information centers only have a limited impact on this factor.

Stakeholders are able to intensively influence the factor of *demand*

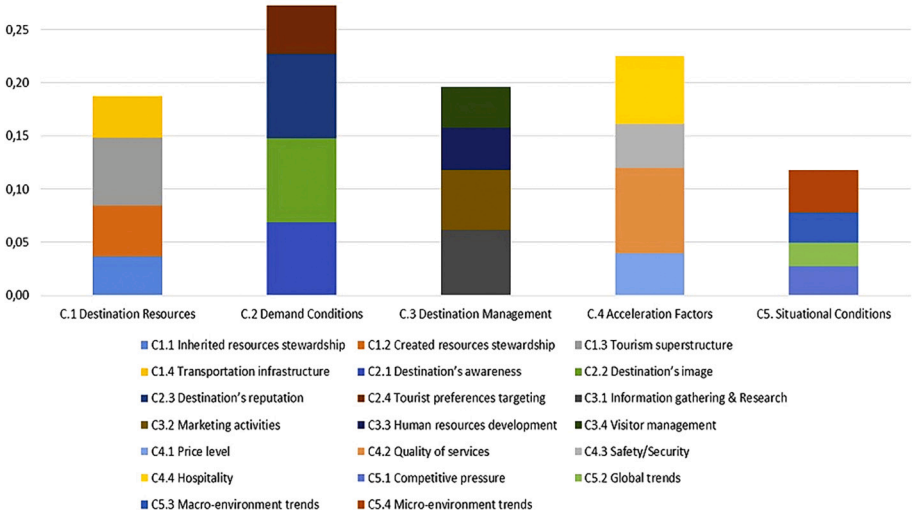

Fig. 3. Aggregate research results.

conditions, which is indirectly connected with the marketing activities of a tourism destination. Destination stakeholders can increase visitors' *awareness of the destination*, and especially enhance a *destination image* and *reputation*. The only exception is the *targeting of tourist preferences*, which is relatively difficult to influence. Positive links among the factors of competitiveness can be found in all stakeholder groups, especially in the case of owners of accommodation facilities, who can be considered as stakeholders of primary importance. We can explain the stakeholders' influence on the demand conditions and especially on the destination image and reputation as follows. Businesses in tourism perceive a strong link between the destination image and the quality of their services provided, and between the destination reputation and their hospitality. However, the destination image and reputation are listed as acceleration factors. As mentioned above, it implies that there are more interrelations in the destination competitiveness than those described in the Aggregate Model.

The respondents also declare that they can support local DMOs in providing *destination management activities*; they have a positive impact on related factors of competitiveness. Thus, they can serve as valuable *sources of up-to-date information* for DMOs. Moreover, they consider themselves to be useful for various DMOs' *marketing activities*, such as joint marketing campaigns and press trips. This positive approach is evident among the representatives of tourist guides and information centers and the representatives of local government. In contrast, the factors of *human resources management* and *visitor management* are given less attention from the respondents' side. They consider *human resources management* as DMOs' domain. Nevertheless, DMOs can ask for financial/administrative support from the local government, which declares its willingness to co-operate in this domain. Similarly, the respondents see *visitor management* as an activity almost exclusively in DMOs domain.

The link to *acceleration factors* is also quite strong. The link to *the quality of service* dominates in this group of factors. Almost all respondents declare that there is a gap in collaboration with local DMOs, which should be improved. Stakeholders are also able to positively influence the level of perceived *hospitality* in a destination. The providers of tourist services and the representatives of tourist guides and information points, who are in direct contact with visitors, play an important role in this case. On the other hand, the other factors are less affected by stakeholders' activities. It is quite surprising that the respondents consider *pricing policy* to be highly dependent on external conditions, such as costs of business resources and/or visitors' purchasing power and as such to be hardly influenced by their activities. *Visitor security* is also perceived to be an issue that is not under full control of the majority of stakeholders. The only exception is the local government, which has some impact on *visitor security* by providing a city monitoring system (CCTV), or by activities of municipal police (operating in Jindrichuv Hradec and Dacice only).

The respondents consider the *external factors* to be very difficult to influence, with the small exception of the *micro-environment trends* that are closely related to the local tourism market. The only stakeholder having an impact on the *situational conditions* is the local government, which has more resources that can influence some of the macro and micro-trends.

The AHP survey reveals the following factors of competitiveness that are considerably influenced by stakeholders' activities. As such, they have the potential to become the leverage points of destination competitiveness:

- C.1 Destination Resources: C1.2 Created resources stewardship, C1.3 Tourism superstructure
- C.2 Demand Conditions: C2.2 Destination image, C2.3 Destination reputation
- C.3 Destination Management: C3.1 Information gathering & Research, C3.2 Marketing activities
- C.4: Acceleration Factors: C4.2 Quality of services, and C4.4 Hospitality

4.1. The dynamics of destination competitiveness

Destination competitiveness is a multi-dimensional concept covering complex relations among the factors of competitiveness. Therefore, the paper uses the system dynamics approach to create a dynamic model of destination competitiveness. Such a model is capable of covering the complexity of tourism destination in a more accurate way. Fig. 4 shows a dynamic model of destination competitiveness in the form of the CLD.

The system consists of various elements that are necessary for its description. The element of *destination competitiveness* is an endogenous variable; the output of the model (which the DMOs want to achieve or enhance). The element of *stakeholder influence* is an exogenous variable; the input of the model (which can be used as an input for simulation of various scenarios). The other elements are considered as mediator variables having a potential to become the leverage points of destination competitiveness. The only exception is the element of *situational conditions*. This element is an exogenouns variable; an external factor which cannot be influenced within the structure of the model.

In order to describe the relations among the elements of the model, the CLD includes various feedback loops influencing the dynamics of destination competitiveness. The loops can be both balancing and reinforcing, and the interconnections (arrows) are marked by positive (+) or negative polarity (−). The delay is marked by an interruption of the arrow (;). The non-linear approach can be demonstrated on the example of one reinforcing causal loop: (1) *destination image* improves the *demand conditions* and stimulates the demand; (2) better *demand conditions* contribute to higher competitiveness; (3) higher *destination competitiveness* determines a need for *information gathering and research* to make relevant decisions for efficient *marketing activities*; (4) efficient *marketing activities* then contribute positively to the *destination image*.

To be able to create a real-life CLD, it is necessary to add some other interconnections among the factors influencing the competitive position of a destination. The additional connections complete the logical structure of the model. Such interconnections are derived from an additional review of the literature in the field of tourism destination management and marketing theory. Table 5 contains their brief descriptions and the information resources used for their specifications.

These interactions significantly increase the complexity and dynamics of the model and disrupt the hierarchy and structure of the static models of destination competitiveness. The structure of the model becomes more complex and reflects a real-life tourism destination as a geographical area consisting of complex relations among various destination stakeholders. In this way, it is helpful to destination managers in examining how different elements (variables) in a system are interrelated and how they can be managed.

The DMOs should concentrate their management & cooperation activities primarily on the factors with the highest potential to positively influence destination competitiveness dynamics, i.e. the leverage points. The leverage points are the following factors with the highest number of loops in which the factors are included: (a) *Information gathering and research*: 54 loops; (b) *Marketing activities*: 34 loops; (c) *Destination image*: 30 loops.

The numbers of loops are directly associated with the ability of the factors to influence the interrelations in the model. The numbers are calculated by *the Loops tool* in the Vensim PLE software. It is practically impossible to achieve the numbers manually due to the overwhelming complexity. As we have described in the methodology section, the number of feedback loops serves as an indicator of the complexity of the system dynamics model. In such a way, we can monitor all the mediator variables and the loops in which they are involved. For instance, Fig. 5 shows an example of two loops in which the factor of *Information gathering and research (need)* is involved. In fact, this factor is a component of other 54 causal loops with various numbers of elements (from 3 to 10).

DMOs should coordinate and stimulate destination stakeholders to gather and share various onsite data within the common Destination Management System. The data range varies according to specific needs

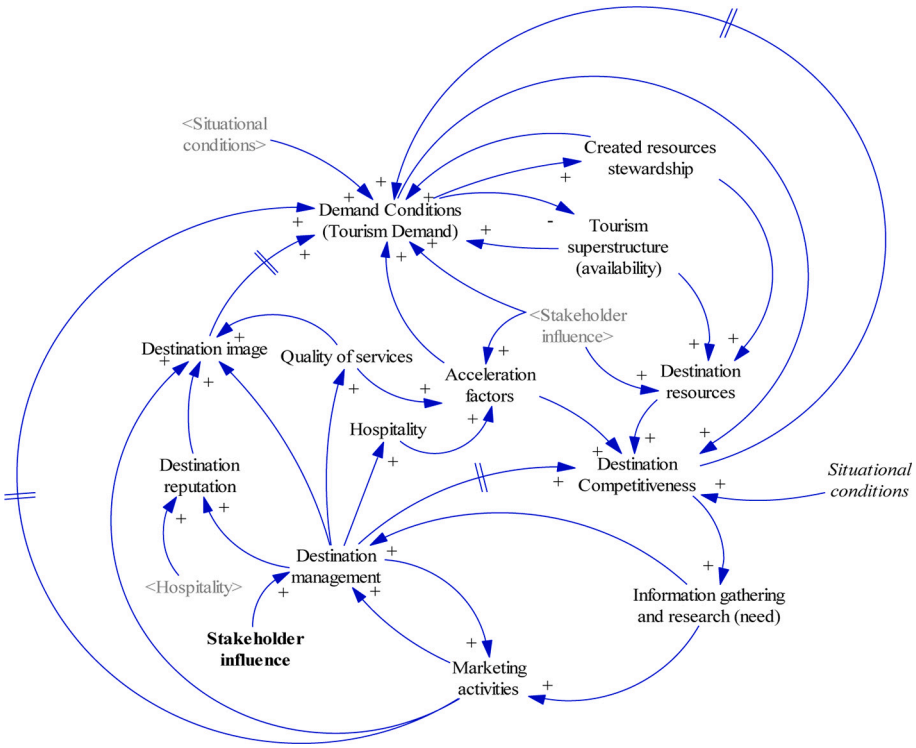

Fig. 4. The dynamic model of destination competitiveness (CLD).

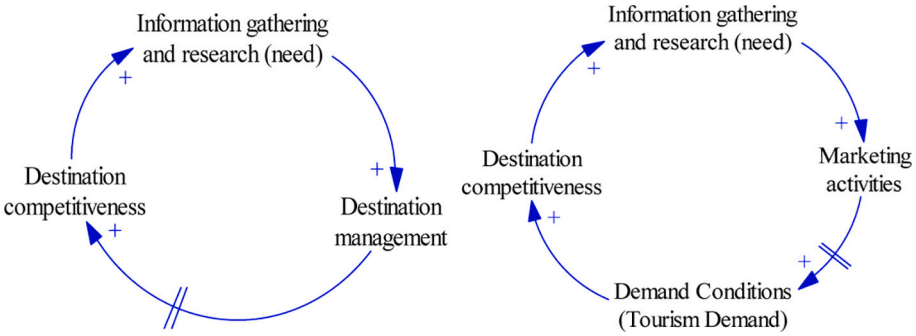

Fig. 5. Causal loops including the factor of information gathering and research.

of destination management. A meaningful data set usually consists of statistical data about destination capacities, tourism demand, and economic impacts, as well as qualitative data about visitors' satisfaction, needs, motivations, and overall visitors' profile.

However, data gathering is just the first step in the collaboration activity. DMOs should also involve stakeholders in data analysis and an interpretation process. This is the best way to obtain valid information about a destination's reality and to explore stakeholders' opinions. A further way to utilize collaboration in this field is to conduct collaborative research.

Various educational institutions, especially universities, play a key role in research collaboration, and we recommend involving them in data gathering and the research process. They are usually capable of not only participating in research but also building its methodological framework and transforming research results into management/marketing-oriented practical implications.

Finally, DMOs should consider group model building, collective scenario planning, and simulations in collaboration with stakeholders. The essential aim is to find a consensus among stakeholders with potentially different management objectives and interests in order to develop a marketing strategy and a marketing/communication mix for the destination. DMOs can use destination-oriented marketing activities and integrated marketing communication as dynamic (controllable) factors to build a positive destination image. The next important step lies in the development of the destination quality management system to boost the destination image, visitor satisfaction, and destination reputation.

5. Discussion & conclusion

System dynamics models can be used as a tool for making strategic decisions and generally for strategic planning in tourism (Schianetz et al., 2007). However, none of the presented systemic models (Ropret, Jere Jakulin, & Likar, 2014; Štumpf & Vojtko, 2016; Jere Jakulin, 2016, 2017; Tan, 2017; Mai & Smith, 2018; Sedarati et al., 2018; Tegegne et al., 2018) have aimed to explain destination competitiveness dynamics.

Our research ambition is to fill this gap using system dynamics to model tourism destination competitiveness and its dynamics. The dynamic aspect, describing complex relations among factors of competitiveness, is missing in the well-known models of destination competitiveness, such as the models of Ritchie and Crouch (2003),

Dwyer and Kim (2003), or World Economic Forum (2019). Our model is aimed at the relations and causalities of a specific problem (Sterman, 2000) that is defined as the impact of stakeholder activities on the factors of destination competitiveness. While the older models assess the overall competitive position of a destination, we explore particular leverage points that have the ability to influence destination competitiveness positively.

The results show that stakeholders are able to affect the key factors of destination competitiveness with different intensity. The leverage points significantly affecting the dynamics of destination competitiveness are (a) *gathering data and conducting research*, (b) *undertaking marketing activities*, and (c) *creating the destination image*. The factor of *data gathering and research* is the most important leverage point included in 54 loops. Continuous data collection and analysis form a basis for a solid participative management or marketing strategy, whose existence is a significant source of competitive advantage (Dwyer & Kim, 2003; Evans, Campbell, & Stonehouse, 2003; Page, 2013). The factors of *undertaking marketing activities* and *creating the destination image* represent the next closely interconnected leverage points. The primary assumption is that the key stakeholders need to be coherent and stable in terms of identity, purpose, and the strategic vision of destination marketing (Schianetz et al., 2007).

Although the identified leverage points can increase destination competitiveness systematically, the complexity of a tourism destination must also be carefully considered. The tourism destination is one of the most complex subjects for the application of management and marketing efforts. This is due to a highly complex level of mutual relations among local stakeholders (Buhalis, 2000). Such complexity is the reason why we do not recommend the isolated utilization of the dynamic model of destination competitiveness. The model must be part of a more comprehensive concept of participative planning and participative decision making. As Elbe, Hallén, and Axelsson (2009) note, the partnership between DMOs and destination stakeholders must be based on mutual understanding, sharing common aims and values, and the ability to solve collaborative tasks. This is the only way in which DMOs will be able to see "the full destination picture," covering many relations among destination stakeholders. Such an approach will allow them to manage their dynamics to reap the benefits of tourism for their destinations.

The study has both a significant theoretical and practical contribution. It lies in the re-conceptualization of static models of destination competitiveness, which are essentially based on a set of indicators strictly classified into predefined categories. The complexity of tourism destinations and their competitiveness deserves a more sophisticated approach. The proposed model of system dynamics allows to depict the complexity of relations among the factors of competitiveness in greater depth, to cover more relations and their causalities, and to reveal the leverage points indicating the most promisable areas of cooperation.

However, there are also some limitations to the study. First, destination visitors and residents were not included in the survey as separate stakeholders. These stakeholders participate in tourism development rather indirectly and do not fully meet the criterion of actionability. However, the methodology of how to incorporate them into the data gathering and analysis is one of the main tasks for the future. Second, the presented CLD does not allow to observe dynamics in time. Another limitation of the CLD is a lack of information about the intensity of all interconnections among the factors of competitiveness.

Therefore, the next aim is to develop a stock and flow diagram that will be able to simulate the behavior of the system in a defined period. It will allow to simulate various scenarios and test tourism policy objectives in a particular destination. Moreover, we see a high potential of system dynamics modeling to enhance the implementation of the learning tourism destination concept. The development of a collaborative simulation model, covering the reinforcement of communication among stakeholders and a systemic approach to data gathering and research is the way forward in future research.

Declarations of interest

None.

Potential peer reviewers

Tadeja Jere Jakulin (University of Primorska, Faculty of Tourism Studies – Turistica, email: tadeja.jerejakulin@fts.upr.si), Hailin Qu (Oklahoma State University, School of Hospitality and Tourism Management, email: h.qu@okstate.edu), Jeong-Gil Choi (Kyung Hee University, College of Hotel and Tourism Management, email: jechoi@khu.ac.kr), Rimantė Hopenienė (Kaunas University of Technology, School of Economics and Business, email: rimante.hopeniene@ktu.lt).

Appendix: Tables

Table 1
Application of Ritchie and Crouch, and Dwyer and Kim models.

Analyzed papers	DCF	Factors of Competitiveness: Ritchie & Crouch's Model					Factors of Competitiveness: Dwyer & Kim's Model						Additional Factors
		A	B	C	D	E	F	G	H	I	J	K	
Enright and Newton (2005)	**52**	13	29	6	2	1							(1) information & communication technologies (ICT)
Gomezelj (2006)	**85**						9	24	12	11	25	4	
Gomezelj and Mihalič (2008)	**85**						9	24	12	11	25	4	
Crouch (2010)	**36**	6	7	9	8	6							
Mechinda et al. (2010)	**16**						4	5	3	3	1		
Zhang et al. (2011)	**6**	3	2	1									
Bigovic (2012)	**74**						9	18	12	9	21	3	(1) destination authenticity, (2) ICT in business
Armenski et al. (2012)	**85**						9	24	12	9	25	4	(1), e-commerce, (2) ICT in business
Dragićević et al. (2012)	**54**	5	17	12	10	9							(1) on-line booking
Vodeb (2012)	**23**	4	3	10	4	1							(1) destination authenticity & identity
Bagarić and Žitinić (2013)	**85**		5				9	19	12	11	25	4	
Goffi (2013)	**64**	12	10	11	12	7		5		6			(1) ICT in business
Štetić et al. (2014)	**28**	3	13	8			3						(1) destination authenticity & identity
Dorta-Afonso and Hernández-Martín (2015)	**4**			3		1							
Chin et al. (2016)	**6**	1	2	2		1							
Topolansky Barbe et al. (2016)	**73**						10	17	13	11	19	3	

(*continued on next page*)

Table 1 (*continued*)

Analyzed papers	DCF	Factors of Competitiveness: Ritchie & Crouch's Model					Factors of Competitiveness: Dwyer & Kim's Model						Additional Factors
		A	B	C	D	E	F	G	H	I	J	K	
Du Plessis et al. (2017)	**8**	1	3	1	1	1							(1) African experience
Kaleji et al. (2017)	**36**		13	4	15	3							(1) educational and research institutions
Bulatović et al. (2018)	**36**	7	6	8	9	6							
Total	N/R	55	110	75	61	36	62	136	76	71	141	22	11

Note: DCF = Destination Competitiveness Factors.

Table 2
The number of respondents.

Stakeholder Group	**Jindrichuv Hradec**	**Dacice**	**Nova Bystrice**	**Slavonice**	
	Number of respondents (Coverage ratio)	Number of respondents (Coverage ratio)	Number of respondents (Coverage ratio)	Number of respondents (Coverage ratio)	**Average Coverage**
S1	10 (40.0%)	5 (90.0%)	5 (40.0%)	5 (50.0%)	55.0%
S2	6 (60.0%)	3 (90.0%)	2 (50.0%)	2 (50.0%)	62.5%
S3	4 (70.0%)	3 (80.0%)	2 (80.0%)	2 (70.0%)	75.0%
S4	2 (40.0%)	2 (60.0%)	2 (80.0%)	2 (60.0%)	60.0%
S5	2 (100.0%)	2 (100.0%)	2 (100.0%)	2 (100.0%)	100.0%
Total	24 (62.0%)	15 (84.0%)	12 (70.0%)	12 (66.0%)	70.5%

Note: S1: Owners of accommodation facilities; S2: Owners of tourist attractions; S3: Providers of tourist services; S4: Representatives of tourist guides and info-centers; S5: Representatives of local government.

Table 3
Research results: Jindrichuv Hradec & Dacice.

Criteria / Importance	Jindrichuv Hradec					Dacice				
	S1	S2	S3	S4	S5	S1	S2	S3	S4	S5
C.1 Destination Resources	**0.20**	**0.33**	**0.18**	**0.14**	**0.17**	**0.23**	**0.26**	**0.23**	**0.12**	**0.20**
C1.1 Inherited resources stewardship	0.02	0.13	0.02	0.01	0.05	0.03	0.10	0.02	0.02	0.05
C1.2 Created resources stewardship	0.03	0.14	0.02	0.03	0.03	0.03	0.12	0.04	0.02	0.03
C1.3 Tourism superstructure	0.13	0.03	0.10	0.09	0.03	0.15	0.02	0.10	0.06	0.04
C1.4 Transportation infrastructure	0.03	0.03	0.04	0.02	0.06	0.03	0.02	0.07	0.02	0.09
C.2 Demand Conditions	**0.35**	**0.27**	**0.27**	**0.23**	**0.25**	**0.26**	**0.30**	**0.29**	**0.27**	**0.24**
C2.1 Destination's awareness	0.10	0.05	0.07	0.07	0.08	0.09	0.07	0.05	0.03	0.10
C2.2 Destination's image	0.11	0.10	0.07	0.06	0.06	0.05	0.08	0.12	0.07	0.06
C2.3 Destination's reputation	0.08	0.09	0.08	0.06	0.06	0.08	0.10	0.10	0.12	0.06
C2.4 Tourist preferences targeting	0.06	0.04	0.05	0.04	0.05	0.04	0.05	0.02	0.05	0.02
C.3 Destination Management	**0.20**	**0.21**	**0.19**	**0.26**	**0.28**	**0.15**	**0.13**	**0.12**	**0.25**	**0.27**
C3.1 Information gathering & Research	0.06	0.07	0.05	0.08	0.10	0.03	0.04	0.04	0.06	0.09
C3.2 Marketing activities	0.05	0.08	0.04	0.10	0.10	0.07	0.04	0.04	0.05	0.07
C3.3 Human resources development	0.04	0.03	0.04	0.04	0.05	0.04	0.03	0.03	0.05	0.07
C3.4 Visitor management	0.05	0.03	0.06	0.04	0.03	0.02	0.03	0.02	0.09	0.04
C.4 Acceleration Factors	**0.20**	**0.15**	**0.25**	**0.28**	**0.17**	**0.26**	**0.18**	**0.22**	**0.27**	**0.14**
C4.1 Price level	0.04	0.03	0.05	0.04	0.02	0.01	0.04	0.04	0.04	0.02
C4.2 Quality of services	0.04	0.08	0.12	0.12	0.04	0.13	0.05	0.08	0.10	0.04
C4.3 Safety/Security	0.03	0.02	0.03	0.05	0.07	0.04	0.04	0.03	0.03	0.06
C4.4 Hospitality	0.09	0.02	0.05	0.07	0.04	0.08	0.05	0.07	0.10	0.02
C5. Situational Conditions	**0.05**	**0.05**	**0.12**	**0.09**	**0.13**	**0.10**	**0.14**	**0.15**	**0.10**	**0.15**
C5.1 Competitive pressure	0.02	0.01	0.03	0.02	0.03	0.04	0.03	0.03	0.01	0.03
C5.2 Global trends	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.03	0.02	0.03
C5.3 Macro-environment trends	0.01	0.01	0.03	0.03	0.04	0.02	0.04	0.03	0.02	0.04
C5.4 Micro-environment trends	0.02	0.02	0.05	0.03	0.05	0.03	0.05	0.06	0.05	0.05

Note: (S1) owners of accommodation facilities, (S2) owners of tourist attractions, (S3) providers of tourist services, (S4) representatives of tourist guides and information centers, (S5) representatives of local governments.

Table 4
Research results: Nova Bystrice & Slavonice.

Criteria / Importance	Nova Bystrice					Slavonice				
	S1	S2	S3	S4	S5	S1	S2	S3	S4	S5
C.1 Destination Resources	**0.16**	**0.25**	**0.19**	**0.11**	**0.15**	**0.19**	**0.22**	**0.12**	**0.11**	**0.22**
C1.1 Inherited resources stewardship	0.02	0.04	0.03	0.02	0.03	0.03	0.04	0.02	0.03	0.06
C1.2 Created resources stewardship	0.02	0.11	0.06	0.02	0.05	0.03	0.10	0.02	0.03	0.05
C1.3 Tourism superstructure	0.09	0.06	0.05	0.05	0.02	0.11	0.05	0.06	0.05	0.03
C1.4 Transportation infrastructure	0.03	0.05	0.05	0.02	0.06	0.03	0.04	0.03	0.02	0.09
C.2 Demand Conditions	**0.30**	**0.25**	**0.25**	**0.28**	**0.30**	**0.28**	**0.27**	**0.25**	**0.32**	**0.26**

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Table 4 (*continued*)

Criteria / Importance	Nova Bystrice					Slavonice				
	S1	S2	S3	S4	S5	S1	S2	S3	S4	S5
C2.1 Destination's awareness	0.06	0.06	0.07	0.04	0.11	0.06	0.07	0.05	0.05	0.11
C2.2 Destination's image	0.09	0.07	0.09	0.06	0.08	0.09	0.10	0.09	0.10	0.07
C2.3 Destination's reputation	0.10	0.07	0.07	0.13	0.05	0.09	0.05	0.08	0.11	0.05
C2.4 Tourist preferences targeting	0.06	0.05	0.02	0.05	0.07	0.05	0.06	0.04	0.06	0.04
C.3 Destination Management	**0.19**	**0.13**	**0.17**	**0.24**	**0.23**	**0.16**	**0.13**	**0.17**	**0.21**	**0.26**
C3.1 Information gathering & Research	0.06	0.03	0.05	0.08	0.11	0.04	0.04	0.05	0.07	0.10
C3.2 Marketing activities	0.06	0.05	0.05	0.05	0.06	0.04	0.04	0.04	0.05	0.06
C3.3 Human resources development	0.05	0.03	0.04	0.05	0.03	0.05	0.03	0.03	0.04	0.06
C3.4 Visitor management	0.03	0.02	0.04	0.07	0.03	0.03	0.02	0.06	0.05	0.04
C.4 Acceleration Factors	**0.28**	**0.30**	**0.28**	**0.25**	**0.14**	**0.21**	**0.27**	**0.31**	**0.26**	**0.12**
C4.1 Price level	0.07	0.06	0.06	0.05	0.03	0.04	0.03	0.06	0.04	0.03
C4.2 Quality of services	0.12	0.13	0.10	0.10	0.03	0.08	0.08	0.10	0.07	0.04
C4.3 Safety/Security	0.03	0.05	0.04	0.04	0.06	0.04	0.05	0.05	0.04	0.04
C4.4 Hospitality	0.06	0.06	0.08	0.06	0.02	0.06	0.12	0.11	0.11	0.02
C5. Situational Conditions	**0.07**	**0.08**	**0.12**	**0.14**	**0.18**	**0.17**	**0.12**	**0.15**	**0.12**	**0.14**
C5.1 Competitive pressure	0.02	0.02	0.03	0.04	0.04	0.05	0.04	0.03	0.03	0.03
C5.2 Global trends	0.01	0.01	0.03	0.02	0.04	0.04	0.03	0.03	0.02	0.03
C5.3 Macro-environment trends	0.02	0.03	0.02	0.03	0.05	0.04	0.03	0.05	0.02	0.04
C5.4 Micro-environment trends	0.03	0.03	0.04	0.05	0.06	0.05	0.03	0.05	0.05	0.04

Note: (S1) owners of accommodation facilities, (S2) owners of tourist attractions, (S3) providers of tourist services, (S4) representatives of tourist guides and information centers, (S5) representatives of local governments.

Table 5
Additional interactions included in the CLD.

Polarity	Linked variables		Information source
+	Destination Competitiveness	Demand Conditions	Kozak (2004); Aas et al. (2005); Byrd, Cardénas, and Greenwood (2008)
+	Demand Conditions	Created resources stewardship	Buhalis (2000); D'Angella and Go (2009); Kozak and Baloglu (2011); Morrison (2013)
–	Demand Conditions	Tourism superstructure	Prayag, Dookhony-Ramphul, and Maryeven (2010); Vanhove (2011); Page (2013)
+	Created resources stewardship	Demand Conditions	Ritchie and Crouch (2003); Kozak and Baloglu (2011); Morrison (2013)
+	Tourism superstructure	Demand Conditions	Ritchie and Crouch (2003); Goeldner and Ritchie (2012); Morrison (2013)
+	Acceleration factors	Demand Conditions	Parra-Lopez and Calero-Garcia (2009); Goeldner and Ritchie (2012)
+	Destination management	Hospitality	Presenza et al. (2005); Sheehan (2006); Page (2013)
+	Destination management	Quality of services	Bornhorst et al. (2010); Page (2013)
+	Destination management	Destination image	Bornhorst et al. (2010); Bagarić and Žitinić (2013)
+	Destination management	Destination reputation	Kozak and Baloglu (2011); Goeldner and Ritchie (2012)
+	Destination management	Marketing Activities	Buhalis (2000); Prideaux and Cooper (2003); Goeldner and Ritchie (2012); Morrison (2013)
+	Hospitality	Destination reputation	Ritchie and Crouch (2003); Stylidis et al. (2014)
+	Marketing activities	Destination image	Tasci and Gartner (2007); Kozak and Baloglu (2011); Morrison (2013)
+	Marketing activities	Demand Conditions	Kozak and Baloglu (2011); Goeldner and Ritchie (2012); Morrison (2013); Page (2013);
+	Destination Competitiveness	Information gathering and research	Ritchie and Crouch (2003); Armenski et al. (2012); Bagarić and Žitinić (2013); Añaña et al. (2018)
+	Information gathering and research	Marketing activities	Kozak and Baloglu (2011); Goeldner and Ritchie (2012); Morrison (2013)
+	Situational conditions	Demand Conditions	Ritchie and Crouch (2003); Kozak and Baloglu (2011); Morrison (2013); Page (2013)

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Martin Luštický, Ph.D., currently serves as the Vice-dean for development and external relations at the Faculty of Management; University of Economics, Prague (Czech Republic). His professional interest includes strategic planning and application of management methods in the field of tourism and regional development. He is author/co-author of more than 70 papers published in interdisciplinary journals and at international conferences. He is a member of editorial board of the Journal of Quality Assurance in Hospitality & Tourism and the Global Business and Finance Review. His international teaching experience includes short-term scholarship at the Center for Hospitality and Tourism Research, Oklahoma State University, U.S., and number of ERASMUS teaching stays in Lithuania, Slovakia and Slovenia.

Petr Štumpf, Ph.D., is an Assistant Professor at the Department of Management, Faculty of Management; University of Economics, Prague (Czech Republic), where he is aimed to destination management and marketing, visitor satisfaction and system dynamics in tourism & hospitality in his teaching and research. He worked as Project Manager at the Tourist Board of South Bohemia (2003–2009) and as Assistant Professor at the University of South Bohemia (2010–2019). He obtained his Ph. D. in 2015. The Ph.D. thesis was aimed to the Systems Approach in Destination Management using system dynamics and simulation modelling. He is a member of SKÅL Club, Linz, Austria. He has rich international experience with teaching in Australia, Slovenia, Austria, Slovakia or Portugal.