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Article

Updating the tourism organizational assessment scale

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Abstract: The recent crisis-filled period has placed a significant burden on various businesses, including in the tourism sector. As a result, the concept of resilience, the flexible ability to resist, has become more and more tangible. This study aims to update the quantitative organizational resilience assessment scale of Orchiston, Prayag and Brown. The paper analyses a sample of 87 tourism service providers managing attractions, and factor analysis was carried out to identify the factors in order to be able to measure the resilience of tourism service providers. Four factors could be identified: Leadership and Organization, Strategy, Independence, and Internal Identity. These identified factors and the included 14 items mean the key contribution, as a new, updated assessment system.

Keywords: resilience; tourism; tourism organizational assessment scale; tourism attraction sites; COVID-19

1. Introduction

Tourism is dramatically affected by the outbreak of a worldwide epidemic and the recovery period can be prolonged (Mátyás, 2022; Novelli et al., 2018). The coronavirus epidemic has had serious economic consequences across the world (Park et al., 2022), but society has also been affected, with dramatic changes in consumer behaviour (Cruz-Cárdenas et al., 2021).

Given the vulnerability of the tourism sector, thoughtful planning is crucial, as unpredictability puts industry players in a difficult position and an unexpected event can happen at any time (Ghaderi et al., 2014; Pike, 2008). In order to prepare for this, a proactive approach is needed not only for businesses but also at regional and national level (Okumus and Karamustafa, 2005). A well-designed plan allows organizations to emerge from the crisis faster and more efficiently (Tew et al., 2008). Nevertheless, practice shows that only a fraction of Hungarian tourism enterprises (13 out of 94 operators surveyed) had a crisis plan in place before the COVID-19 epidemic (Keller et al., 2022).

The different forms of crises, their speed and depth make it impossible to plan for all of them, making resilience a top priority for tourism businesses. In the quiet

period, they need to build up the necessary flexibility, dynamism and agility, the ability to shift focus, i.e. resilience in difficult situations (Backer and Ritchie, 2017)

Resilience research in tourism has increased in recent years, and the approach has also been used to examine the responses of tourist destinations (Cartier and Taylor, 2020) and organizations (Fountain and Cradock-Henry, 2020) to crises and disasters. Therefore, it is inevitable that resilience can be measured in the most exact way. After previous qualitative assessment methods (Harte et al., 2009), Orchiston et al. (2016) provided the first quantitative assessment method of organizational resilience in tourism industry.

The aim of the study is to improve the quantitative organizational resilience assessment scale of Orchiston et al. and to validate it in an empirical study. This article contributes to increasing knowledge about resilience in tourism and its findings have practical implications for managers and policymakers how to increase their resilience and to get prepared for unforeseen situations.

The study is structured as following: After presenting the characteristics of resilience, it is shown how the term can be interpreted in tourism. Based on literature and in lines with the trends, an extended quantitative assessment method is developed. The updated organizational assessment scale was tested in empirical research: a survey was conducted to measure the resilience of natural and man-made tourism attractions using a sample of 87 Hungarian tourism providers. To the best of the authors' knowledge, the resilience of tourist attractions has not been measured so far.

Attractions are not at the forefront of crisis management research in the tourism sector, although destinations are built on attractions (Swarbrooke, 2002). The articles regarding resilience in tourism primarily focused on large hotels (Boto-García and Mayor, 2022; Kenny and Dutt, 2022; Salem et al., 2022), hospitality industry (Aigbedo, 2021; Alreahi et al., 2023; Hemmington and Neill, 2022; Zhu et al., 2023), tour operators (Do et al., 2022) and airlines (Belhadi et al., 2021; El Archi et al., 2023; Gallardo, 2023; Gavurova et al., 2023; Hegedűs et al., 2020; Wong et al., 2020). But measuring resilience is essential even in cases of attractions toward reducing risks and being better prepared for unforeseen events.

Any site that is interesting for tourists to visit could be seen as 'attraction' (Holloway and Taylor, 2006). According to Ebejer, an attraction can be "a site that is of sufficient aesthetic, narrative and/or cultural interest to provide for the enjoyment, amusement, entertainment and education of visitors" (Ebejer, 2021). Tourist attractions can increase tourists' perceived value of the destination and loyalty (Moon and Han, 2019).

2. Interpretation of resilience

The term 'resilience' was first used in relation to ecosystems as a concept for the ability to maintain systems and absorb changes and confusions (Holling, 1973). Resilience is defined as a multifaceted concept that shows how an organization and its members react to uncertainties (Lee et al., 2013). The adaptive cycle of Gunderson and Holling (2001) in a state of continuous development and reorganization was an important milestone in resilience research. It shows that between long periods of aggregation and transformation of resources shorter periods come in order to

reorganize and create opportunities for innovation. Understanding the concept of dynamic capabilities also helps increase the resilience of organizations (Jiang et al., 2019). This technique enables tourism organizations to respond to disruptive developments through a normal transformation, resource allocation, and utilization process (Nagy et al., 2023).

In a flexible and resilient system, change creates opportunities for development and innovation. Vulnerability is the reverse side of resilience: when a social or ecological system loses its resilience, it becomes vulnerable to previously acceptable changes (Folke, 2003). In a vulnerable system, even small changes can be devastating. Crisis periods provide a better opportunity for businesses to build dynamic capabilities than stable periods (Alonso-Almeida et al., 2015). Resilience becomes especially important in critical periods when change is inevitable, at which point the crisis is both an opportunity and a threat (Ruiz-Ballesteros, 2011).

Lew (2014) made the distinction between fast changing variables and slow changing variables for measurement of resilience in the tourism context. Research differentiates between adaptation to slow (e.g., climate change) and adaptation to immediate changes (e.g., economic crises), which require different forms of innovation, adaptation, and structural transformation (Luthe and Wyss, 2014). Ecosystem research has shown that the change of systems from one state to another is often related to changes in slow variables and their effect on fast variables. Slow variables determine the structure of the system, while fast variables determine the dynamics of the underlying structure (Becken, 2013).

Resilience management involves the activities of system actors to avoid critical thresholds (Berkes, 2007). According to Klein et al. (2003), adaptive capacity is the collective ability to manage resilience, including the preparation and planning for hazards as well as the recovery from a crisis. Pre-management tasks have changed: efforts should be made to manage changes in systems that are assumed to be stable, but to maintain and, where possible, increase the capacity of social, economic, and ecological systems to deal with and adjust to change. The central question of resilience is the extent to which a system can build and enhance learning, adaptability, and responsiveness without limiting or impairing future opportunities (Folke, 2003). The purpose of building resilience is to strengthen robustness rather than to create stability (Nelson et al., 2007), therefore the task is not to avoid changes and transformation, but to examine how an organization manages them (Ruiz-Ballesteros, 2011).

The interconnection of socio-ecological systems improves the resilience of the system by exchanging the energy, materials and information needed to maintain and improve it. Constant monitoring and information sharing between stakeholders are prerequisites for being able to provide immediate answers to problems that arise (Biggs et al., 2015). Monitoring signals can also prevent the spread of confounding factors by enabling an immediate response to problems. However, unnecessary or excessive interconnection can cause confusion or damage (Choi et al., 2021). For example, in the case of a natural attraction, ecological and ecotourism experts can support tourism organizations to increase their knowledge and sense of responsibility (Choi et al., 2017).

3. Resilience in tourism

The resilience of destinations facilitates a strategic and integrated approach to managing crises and disasters (Hall et al., 2017). The benefit of strategic management is that it encourages destination managers to take a long-term view, with higher levels of planning, a reassessment of 'if' thinking, and more deliberate actions (Jiang et al., 2018). Resilience can provide a better understanding of how systems such as tourist destinations cope with adversity (Prayag, 2018).

Resilience is not specific to a single activity, but to the system, and therefore the context must be examined (Smith et al., 2008). Several qualitative and quantitative (Béné et al., 2016; Claire et al., 2017; Lee et al., 2013; Maxwell et al., 2015) assessment models exist based on different resilience factors, which can be applied in all economic sectors, among others in tourism (Kaçmaz and Çevirgen, 2021; Li et al., 2021; Schwaiger et al., 2022).

Tourism studies either discuss resilience as a theoretical concept (Strickland-Munro et al., 2010) or assess it through qualitative research based on individual or collective perceptions of stakeholders (Becken, 2013; Espiner and Becken, 2013; Ruiz-Ballesteros, 2011).

Orchiston et al. (2016) were the first to attempt to develop a quantitative assessment scale, whose thirteen items have been widely used in tourism research (Kaçmaz and Çevirgen, 2021; Melián-Alzola et al., 2020; Sobaih et al., 2021). Orchiston et al. (2016) developed the items using the measurement tool, which was provided by McManus et al. (2008) and further developed by Lee et al. (2013) to a non-tourism, general organizational resilience benchmark tool.

The method of Orchiston et al. (2016) is based on thirteen resilience items, and two factors have been identified: the 'Planning and Culture' factor captures the culture and formal preparedness of the organization, covering leadership quality, staff engagement and crisis preparedness. The 'Collaboration and Innovation' factor refers to the organization's ability to respond creatively to the changing tourism environment through innovation and collaboration (**Figure 1**).

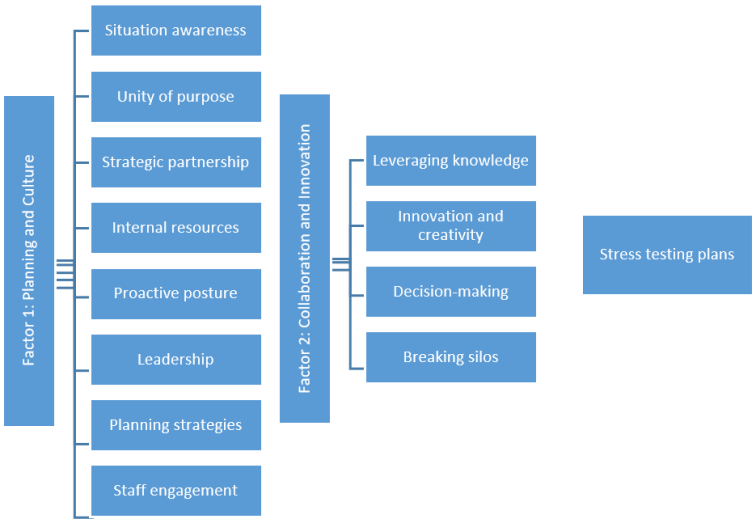

Figure 1. Items and factors in the organizational assessment scale.

Planning, culture, collaboration and innovation are key attributes to the resilience of various sectors in the tourism industry, but they have to be supplemented with other factors, as well. Resilience indicators must be multidimensional and need to cover the time dynamism and risk management skills (Sharifi, 2016).

In addition to the above, the authors identified nine new elements for the assessment of tourism resilience based on the literature review (**Table 1**).

Table 1. Newly determined items for assessing resilience in tourism.

Items	Definition—Connection to resilience
Adaptability of activities and structure	Adaptability is influenced by several factors, such as changes in local institutions, new technology, overexploitation of resources, and socio-economic changes (Berkes and Seixas, 2005). Adaptability is the capacity of actors in the system to influence resilience (Walker et al., 2004).
Diversity	Diversity means that a given system has several options to solve a problem (Choi et al., 2021). A diverse system can adequately cope with disturbances by choosing from the available options (Leslie and McCabe, 2013) If one method fails, the system will be able to achieve results with another solution (Low et al., 2003). A resilient governance structure must fulfill two fundamental requirements: it must anticipate disruption by fostering diversity and maintaining it, for instance through decentralized learning processes, and it must react to disruption by fostering resilience, for instance by bolstering centralized collective action (Folke et al., 2005).
Identity	Resilience is „the capacity of a system to undergo change while still maintaining the same structure, functions and feedbacks, therefore identity" (Walker et al., 2010).
Learning	Learning is the process of creating and modifying knowledge, which involves interpreting and understanding reality in different ways by acquiring information, extending knowledge, and learning techniques and methods (Biggs et al., 2015). In contrast to ecosystem components, human responses can be both reactive and proactive, and the more advanced the proactive capabilities are, the more flexible the social system is (Gallopin, 2006).
Long-term thinking approach	Long-term plans are necessary to develop business resilience (Souza et al., 2017).
Participation	Participation means the active involvement of stakeholders in management and governance activities, from tourism services to education and monitoring. Stakeholders are also involved in financing, providing information, lobbying, and supporting the management of the given enterprise by signalling disturbances (Folke, 2006). The long-term success of tourism operators and the destination depends to a large extent on the cooperation and the coordination of their individual resources, activities and services (Beritelli et al., 2007). Decisions and collective dilemmas can be resolved effectively when a system faces problems of dynamism and feedback. Collaboration ranges from information sharing through coordination to problem solving and internal conflict resolution (Biggs et al., 2015).
Recovery	"Recovery is a product of resilience and response." (Platt et al., 2016) The recovery process is a key determinant of system resilience because it describes the capability of a system to restore its performance after a disruption (Cassottana et al., 2019).
System thinking approach in the organization	Resilience identifies key perspectives and ways of thinking that propel resilience-compatible planning (Bhamra, 2015; Prayag, 2018; Quendler, 2015; Sellberg et al., 2018).

4. Research methodology

The current study aims to update the quantitative assessment tool for measuring resilience in tourism developed by Orchiston, Prayag and Brown (2016). Their factors were measured using thirteen items and statements (**Table 2**) on a four-point Likert scale (1= Strongly Disagree to 4= Strongly Agree, including a Don't know option) among tourism organizations in Canterbury, New Zealand.

Based on the literature review, the thirteen items were extended with nine further items: identity, adaptation of activities, adaptation of structure, diversity, learning ability, long-term thinking approach, system thinking approach, capacity to learn, participation and recovery. These items were measured with the following statements

on the same four-point Likert scale (**Table 3**).

Table 2. Items and statements in the organizational assessment scale.

Items	Statement (1–4)
Situation awareness	We proactively monitor our industry to have an early warning of emerging issues.
Unity of purpose	We have clearly defined priorities for what is important during and after a crisis.
Strategic partnership	We build relationships with organizations we might have to work with in a crisis.
Internal resources	Our organization maintains sufficient resources to absorb some unexpected changes.
Proactive posture	We have focus on being able to respond to the unexpected.
Leadership	There would be good leadership from within our organization if we were struck by a crisis.
Planning strategies	Given our level of importance, the way we plan for the unexpected is appropriate.
Staff engagement	People in our organization are committed to working on a problem until it is resolved.
Leveraging knowledge	If key people are unavailable, there are always others who could fill their role.
Innovation and creativity	We are known for our ability to use knowledge in novel ways.
Decision making	We can make tough decisions quickly.
Breaking silos	There are few barriers stopping us from working well with other organizations.
Stress testing plans	We believe emergency plans must be practiced and tested to be effective.

Table 3. Newly developed items and statements in the updated organizational assessment scale.

Items	Statement (1–4)
Adaptation of activities	We shape our activities to be able to adapt to the changes around us.
Adaptation of structure	We are flexible in our organizational structure if we feel that a change is needed.
Capacity to learn	The aim is to jointly develop the learning and development skills of the members of the organization and group learning.
Diversity	We have several scenarios in our minds for how to recover from a crisis as soon as possible.
Identity	Maintaining an organizational identity is important in a time of change.
Long-term thinking approach	Organizational leaders also focus their decisions on longer-term and spill-over effects, treating them as complex issues.
Participation	We are in constant and active contact with external stakeholders (other tourism service operators, destination management organizations).
Recovery	The company recovers from crises quickly.
System thinking approach	Managers manage the functioning and development of the organization at system level, taking care of the impact of changes on other departments.

After formulating the added assessment items, a questionnaire survey was developed to assess the tourism attractions' resilience in response to the COVID-19 pandemic. The primary research for evaluating the performance of resilience assessment items was based on questionnaires with managers of attractions operating in the tourism sector in Hungary. Despite the fact that the COVID-19 outbreak had a devastating effect on the industry, tourism is still important to the nation, which directly contributed 8% of Hungarian gross domestic product (GDP) in 2019 and 5.12% in 2021 (Medve, 2022). One of the big losers of the pandemic were the tourism attractions, as they had to stay closed during the first three waves of the epidemic (Keller and Tóth-Kaszás, 2020).

The questionnaire was generated in Google Forms, an online tool by Google that

is publicly available for use. Given the fact that the diversified target group is across the nation, online survey was the most cost-effective approach. Prior to formal investigation, a pilot test of the survey with 12 respondents was conducted to check the appropriateness of the survey. The formal survey was conducted from March to May 2021.

This study applied layered, and within that random sampling logic. The bases of the layering were given by Michalkó (2016), who divided the two main groups of tourist attractions (natural attractions and man-made attractions) into further categories. Based on his work, 8 different types of natural attractions and 16 different types of man-made attractions were identified (**Table 4**). In this study these 24 attraction types were used as layers of sampling. Our research initiation was to acquire information from at least 1-1 tourism attraction site from each layer. Therefore, we contacted 10-10 tourist sites in each 24 categories during the research. Since no database summarizing the full range of tourist attractions in Hungary is available, the sampling approach, which was applied after the layer-definition, was random, bearing in mind the geographical heterogeneity across the country.

Table 4. Number of interviews made with operators of natural and man-made attractions.

Type of natural attraction	**Number of interviews**
flora and fauna	7
waters	6
volcanism	3
astronomical phenomena	3
climate and weather phenomena	2
topography	2
scenic beauty	1
soil conditions	1
total	25
Type of man-made attraction	Number of interviews
gastronomy	8
medical treatment	8
cultural traditions	6
buildings evoking historical periods	5
living spaces resulting from the social division of labour	5
special collections	5
stations in the lives of famous people	4
production and work	4
unique works of architecture	4
shadow site	3
services and sites for physical activity	3
sites of historical events	2
specific forms and spaces of human coexistence	2
spiritual sphere	1

Table 4. (*Continued*).

Type of natural attraction	Number of interviews
the top	1
public artworks	1
total	62

A total of 240 contacts were made, and 87 responses were returned, representing a response rate of 36.25%. After data purification, all the 87 responses were retained for final analysis. The sample included 25 natural and 62 man-made attractions (**Table 4**) from all over the country. Natural attractions are the result of the Earth's internal and external work and are linked to the formation of the universe. Man-made attractions are either artificial facilities (e.g., open-air museums) or leisure-oriented (e.g., Turkish baths) and function-changing (e.g., ski resorts) tourist sites (Michalkó, 2016).

5. Research findings

The aim of the research is to update and validate an independent tourism resilience assessment model based on the literature. The resilience was examined based on the 13 variables formulated by Orchiston et al. (2016), and the further 9 variables defined by the authors (**Tables 1** and **2**). Therefore, a total of 22 variables were involved in the statistical analyses, all measured on a 1–4 scale. The scale-type variables belong to the high measurement level variables, which is, among others, a prerequisite for performing factor analysis.

A dimensional reduction procedure was applied to the results obtained from the examined sample. Factor analysis was performed with maximum likelihood and varimax rotation adjustments among the 22 variables described above. Factor analysis involves "creating artificial dimensions that are highly correlated with several observed variables and independent of each other" (Babbie, 2003). Factor analysis has two basic purposes. On the one hand, it can reveal the structure of data, and on the other hand, it can reduce the amount of data. By compressing the original variables into closely correlated factors, the procedure creates new variables (factors) that are uncorrelated with each other. These new latent variables reflect well the behaviour and the content of the original dataset, while making the correlation of the original variables measurable. The value of the correlation between the original variables and the created factors is given by the factor weights, which can be used to determine how much of the original information content is covered by the created latent variables (Sajtos and Mitev, 2007).

The competency of the correlation coefficient data is measured by the Kaiser-Meyer-Olkin (KMO) criterion as well as the Bartlett test. If the Kaiser-Meyer-Olkin index is greater than 0.5, then our variables are suitable for factor analysis, and the closer the KMO value is to 1, the better results we can expect from the analysis. As for the Bartlett test, a significance level of less than 0.05 indicates that factor analysis is recommended (Sajtos and Mitev, 2007). The result of our factor analysis indicates that the generated model shows a good fit with a KMO value of 0.768, which is also a significant result (sig.: 0.000).

Based on Orchiston's et al. (2016) assessment tool, supplemented by the authors' resilience items, the examined attractions seem to be at a higher level. Measured on a 1–4 scale, the aggregated means of the answers reached 3.0 in case of 15 items out of 22.

In connection with the resilience of the examined attractions, the Staff engagement (mean: 3.68) and the Identity (mean: 3.64) elements show the highest value, as shown in **Table 5**. This suggests that the resilience of attractions is mainly due to the commitment of the people in the organization to problem solving; and that maintaining an organizational identity is considered important in a time of change. All this supports that the legitimacy of the sector, the operation of tourism and the quality of service are primarily focused on human resources, and the success of service providers depends on the behaviour and attitudes of the workforce. All this is true for leaders, as well. The examined attractions declared that if they were struck by a crisis, they would need a leader from within the organization, who was in constant and active contact with external stakeholders (other tourism service operators, destination management organizations).

Table 5. The resilience of the examined attractions based on Orchiston et al.' (a) and the authors' (b) resilience items.

Item	Mean
Staff engagement (a)	3.68
Identity (b)	3.64
Leadership (a)	3.51
Participation (b)	3.47
Long-term thinking approach (b)	3.45
Adaptation of activities (b)	3.43
Innovation and creativity (a)	3.39
Planning strategies (a)	3.32
System thinking approach (b)	3.26
Situation awareness (a)	3.26
Decision making (a)	3.24
Unity of purpose (a)	3.18
Adaptation of structure (b)	3.16
Capacity to learn (b)	3.15
Proactive posture (a)	3.08
Leveraging knowledge (a)	2.94
Recovery (b)	2.92
Diversity (b)	2.85
Strategic partnership (a)	2.81
Stress testing plans (a)	2.81
Internal resources (a)	2.78
Breaking silos (a)	2.07

To validate the model, and to update the tourism organizational assessment scale of Orchiston et al. the 22 variables were further examined using a data reduction method, looking for the structure of compressing, latent variables. Originally 22 variables were included in the factor analysis, but 8 had to be excluded due to not appropriate commonality and factor fit. Their communalities did not exceed the statistically necessary 0.25 score, which means that these variables did not contribute to the formation of the factors. The excluded variables were situation awareness, staff engagement, leveraging knowledge, innovation and creativity, long-term thinking, capacity to learn, participation, and recovery.

Table 6. Comparison of the Orchiston et al. (2016) model and the authors model after statistical factor analyses.

Elements of Orchiston's model	**Elements of authors model**
Unity of purpose	Unity of purpose
Strategic partnership	Strategic partnership
Internal resources	Internal resources
Proactive posture	Proactive posture
Leadership	Leadership
Planning strategies	Planning strategies
Decision making	Decision making
Breaking silos	Breaking silos
Stress testing plans	Stress testing plans
-	Identity
-	Adaptability of activities and structure
-	Diversity
-	Learning ability
-	System thinking approach

After the factor analysis, 14 variables proved to be statistically appropriate, of which 9 are according to the original model, and another 5 are our own additions, as shown in **Table 6**. The communality of the 14 remaining resilience variables in the analysis is in the right range.

As a result of our analysis, as shown in **Table 7**, the resilience of tourism service providers can be measured based on the following four factors:

- Factor_1_Leadership and organization: Includes the items of Leadership, Planning strategies, Decision making, Adaptation of activities, Adaptation of structure, and Diversity.
- Factor_2_Strategy: Includes Unity of purpose, Strategic partnership, Proactive posture, and Stress testing plans.
- Factor_3_Independence: Internal resources, Breaking silos.
- Factor_4_Internal Identity: Identity.

Table 7. Generated factors and factor weights.

	Factor			
	Leadership and organization	**Strategy**	**Independence**	**Internal identity**
We have the leadership competencies to deal with a crisis situation.	0.692	0.112	0.300	0.056
Given our size, we have the right contingency planning.	0.633	0.282	0.193	0.126
We can make tough decisions quickly.	0.763	0.117	−0.084	0.197
We shape our activities to adapt to the changes around us.	0.604	0.160	−0.003	0.058
We have the flexibility to adapt our organizational structure if we feel that change is needed.	0.567	−0.201	−0.051	−0.244
We have several scenarios in our minds for a crisis and how to get out of it as soon as possible.	0.640	0.319	0.135	0.014
Managers manage the operation and development of the organization at system level, taking care of the effects of changes on other departments.	0.645	0.171	0.028	0.363
We believe there is a need for contingency plans that are effectively tested.	0.268	0.534	−0.105	0.170
We have clearly defined priorities for what is important during and after a crisis.	0.072	0.748	0.320	0.094
We build relationships with organizations, with which we may need to work in a crisis.	0.005	0.685	0.046	0.159
We focus on being able to respond to unexpected events.	0.399	0.699	0.150	−0.143
There are some barriers that prevent us from working well with other organizations.	0.080	−0.032	−0.597	−0.273
Our organization has sufficient resources for unexpected changes.	0.321	0.224	0.820	−0.123
During change, it is important for us to maintain our organizational identity.	0.180	0.153	0.127	0.671

Based on the above results, the Factor_1_Leadership and Organization describes that the company has a competent leader, who has a vision even in case of crises, can show alternative solutions for the further operation, and is able to decide quickly. The organization, if well-organized, have a contingency plan, which can come into force in case of necessity. It also means the flexibility of the organization in its processes and structure.

Factor_2_Strategy describes that the organization has written contingency plans and priority lists that can be followed in a case of crises, therefore it means a kind of a well-prepared strategy. This strategic logic also includes that the organization puts emphasis on cooperation with other service providers in order to avoid separation in critical situations.

The Factor_3_Independence indicates a kind of prevention of vulnerability, which means the ability to provide the necessary resources on their own and not to rely on others. On the other hand, independence also means that the organization has realized the barriers that prevent it from working well with other organizations.

During the analyses we identified a factor that includes only one, but apparently a very important item. Factor_4_Internal Identity means that the organization has its own identity, value system and independence, and it is important to maintain this organizational identity.

In the original assessment systems, two factors plus one separate item were defined, including 13 items. The 'Planning and Culture' factor captures the culture and formal preparedness of the organization, covering leadership quality, staff engagement and crisis preparedness. The 'Collaboration and Innovation' factor refers to the organization's ability to respond creatively to the changing tourism environment through innovation and collaboration.

Comparing our research results and factors with the elements of the original assessment system, we can conclude the followings:

- Our assessment system contains 22 items, compared to the 13 original items;
- During testing (factor analyses) 4 items were excluded from the original model and further 4 items from our new model;
- Factor_1_Leadership and Organization contains 3 items from the original model, plus 4 new ones from our model;
- Factor_2_Strategy contains 4 items from the original model;
- Factor_3_Independence contains 2 items from the original model;
- Factor_4_Internal Identity contains 1 item from our new model.

Compared to the original assessment system, it can be seen in **Table 8** that the resilience factors in our new approach are structured differently. The items of the F1_Planning and Culture factor in the original system are grouped into 3 different factors in our new approach; the items of the F2_Collaboration and innovation factors were also included in two different factors in the new model. The stress testing plan, as a separate element in the original assessment system belongs to the F2_Strategy factor in our approach.

Table 8. Resilience factors and items—comparison of the two assessment models.

Items	Factor in the original model	Factor in our model
Unity of purpose	F1_Planning and Culture	F2_Strategy
Strategic partnership	F1_Planning and Culture	F2_Strategy
Internal resources	F1_Planning and Culture	F3_Independence
Proactive posture	F1_Planning and Culture	F2_Strategy
Leadership	F1_Planning and Culture	F1_Leadership and Organization
Planning strategies	F1_Planning and Culture	F1_Leadership and Organization
Decision making	F2_Collaboration and innovation	F1_Leadership and Organization
Breaking silos	F2_Collaboration and innovation	F3_Independence
Stress testing plans	F3_Separate	F2_Strategy
Identity	not included	F4_Internal identity
Adaptation of activities	not included	F1_Leadership and Organization
Adaptation of structure	not included	F1_Leadership and Organization
Diversity	not included	F1_Leadership and Organization
Long-term thinking approach	not included	F1_Leadership and Organization

To explore the different kinds of correlations, we conducted further for analysis of variance (ANOVA) analyses between the 4 factors and the attraction type/the years of operation of the organization/the size of the organization. Only in a few negligible

cases there is a statistically verifiable correlation between these variables, which also means that neither the type of the attraction nor the size or operation duration of the organization affect the resilience of the attractions significantly.

6. Discussion

Tourism undoubtedly plays a significant role in the economies of many countries (Tóth et al., 2021, 2014), making a significant contribution to GDP. However, crisis situations such as COVID-19 pose significant challenges for the sector. Due to the coronavirus epidemic, tourism operators have experienced an unprecedented crisis. The crisis has not only affected one player or a geographical region but has cancelled the journey itself and abolished the entire demand.

This phenomenon is increasingly drawing attention to the issue of resilience, of which interpretation in tourism sector is in the focus of this study. The concept of resilience and its tourism interpretation are widely discussed in the literature. We can also find several sources for measuring resilience, which approach primarily focuses on accommodation and catering service providers. Building on this knowledge, but beyond that, our study examines a specific segment of the tourist offer, the attractions. Our research is aimed at this target group because the operators of the attractions could not modify their activities or profile in the same way as other service providers: while the accommodations functioned as conference venues and rental apartments during the coronavirus, and the restaurants cooked for delivery and takeaway, the possibilities for attractions narrowed down.

The most widely applied assessment tool to measure the resilience is derived from the theory of Orchiston et al. They have identified 13 items, through which the service providers in the tourism sector can be assessed. Orchiston et al. grouped these items into two factors, plus one separate item: F1_Planning and Culture; F2_Collaboration and innovation; F3_ Stress testing plans.

This study aimed to update the organizational resilience assessment scale of Orchiston et al. based on an empirical study. However, according to our hypothesis, the special characteristics of the attractions as well as the experience of the crisis gained by the tourist actors during the coronavirus epidemic necessitate the expansion of the above study and thus the elements of resilience testing. Based on the literature overview, nine further items were involved into the assessment system: Identity; Adaptation of activities; Adaptation of structure; Diversity; System thinking approach; Long-term thinking; Capacity to learn; Participation; Recovery. With these items resilience has been a more complex measurement concept, which is much broader than the initial resilience model of Folke (2003) with learning, adaptability and responsiveness. The items attest the statement of Nelson et al. (2007) that the purpose of building resilience is to strengthen robustness rather than to create stability. Identity, diversity, system thinking approach, long-term thinking, capacity to learn and participation make enterprises more robust, while adaptation of activities and structure and recovery rather provide stability.

Most of the research on resilience rely on two main perspectives: 1) a static personal characteristic and ability, and 2) a process created by continuous, gradual improvements (Liu et al., 2019). In this paper, we consider resilience as a capability

that can be continuously improved within an organization.

Through an empirical study we tested this new, extended model of resilience among 87 tourism attractions by questioning the managers. Based on the results, factor analyses were used to explore the latent correlation between the items. According to them, compared to the original assessment system, four factors turned out to be valid: Leadership and Organization, Strategy, Independence, and Internal Identity. These identified factors and the included 14 items mean the key contribution of our study, as a new, updated assessment system of Orchiston et al. work. Our results confirm the finding of Smith et al. (2008) that resilience is not limited to a single activity but reflects a systems approach.

7. Conclusion

In this study, through an empirical, quantitative research, the tourism organizational assessment scale of Orchiston et al. was updated and specialized for the tourist attractions, based on the experiences gained from the crisis caused by the coronavirus epidemic. This study brought new knowledge in developing standardized tools for assessment of resilience in the field of tourism.

It is important that organizational flexibility is understood across and within sectors, as it is essential for building resilient communities (McManus et al., 2008; Ogutu et al., 2023a; Ogutu et al., 2023b). The concept of resilience first appeared in the discipline related to sustainability sciences (Curtin and Parker, 2014). It was later applied in other areas such as health (Verdolini et al., 2021), food security, disaster management (Matyas and Pelling, 2014) and tourism (Dogru et al., 2019). The authors of several tourism studies have examined resilience in relation to COVID-19 (Sharma et al., 2021), and this study was based on tourism organizations in a during-disaster context, as well.

Resilience is a notion of complex adaptive systems, whose assessment requires continuous review (Quinlan et al., 2015). Therefore, former concepts must be renewed. Based on Orchiston et al. (2016) “further research on the resilience of the tourism sector and the relative influence of business characteristics, such as size and age, would refine the dimensions of organizational resilience that characterize this sector.”

It can be stated that this study partly confirmed Orchiston et al.’ assessment system, since nine items from their model are also included in the new, upgraded concept. However, this study has an added value with the further five elements, which were involved and tested in the empirical study, and remained in the factor analyses, as well. These new items are identity; adaptation of activities; adaptation of structure; diversity; long-term thinking approach.

In contrast to Orchiston et al. work, we identified 4 resilience factors:

- Factor_1_Leadership and Organization, which includes competencies, like the leadership competencies, contingency planning, quick decision making, ability to change activities, flexible organizational structure, thinking in scenarios, system-oriented developments.
- Factor_2_Strategy, which includes the unity of purposes, defined priorities, tested plans, reliable partnerships, responsiveness to unexpected events.
- Factor_3_Independence factor includes organisational competencies, like

sufficient resources and independent crisis management

- Factor_4_Internal Identity, which means that it is important for the organisation to maintain its organizational identity, even during any changes.

8. Implications and limitations

In our study, we have confirmed that proactive approach is needed; a well-designed plan allows organizations to emerge from the crisis faster and more efficiently. However, since the crises are so different, it is not possible to plan uniformly. Since the Covid-19, as examined in the study, tourism providers have had to deal with the energy crisis, for example. That is why the issue of resilience has become important, which is also supported by our study.

This research has theoretical and practical implications, as well. Measuring resilience based on the extended items enables tourism managers and policy makers to make better decisions and improvements regarding their organizations.

Finally, we identified four factors, through which the resilience of tourist attractions can be measured. These factors included 14 itemsas the key contribution, as a new, updated assessment system. In addition, the novel results and the theoretical implication of the study are the following:

- It defines the meaning and content of resilience among tourism service providers. Compared to the previous survey among accommodation and catering service providers, our model measured the resilience of attractions as a new aspect; our research focused on tourist attraction sites, which was unprecedented before. The specialist literature mainly examined the resilience of accommodation and catering facilities.
- It helps measure resilience by giving metrics with 14 variables. Our study expands the original model with new elements, which were tested, validated through an empirical data collection.
- It presents the indicators of resilience in a new kind of structural approach. Comapred to Orchiston et al.' assessment system, our study reorganizes their variables and has added new elements to the assessment model. **Table 8** shows the structure of the examined aspects in detail in the original model and in the authors' model.
- There has been no similar survey previously among Hungarian tourism service providers.

There are four main limitations in this study. The attraction sites involved in the research covered the types of tourist attractions unevenly. This implies that our research results cannot be considered representative, but rather exploratory. At the same time, since the empirical research primarily served to validate the model, we did not strive for representativeness, as it was a more important aspect to be able to include all types of attractions in the study. Another limiting factor was the date of the examination. Our research was conducted during the coronavirus epidemic, which may distort the answers to some extent. In the middle of the crisis, service providers presumably considered the various issues of resilience more important than they would have done before the crisis, since they experienced the difficulties caused by the crisis firsthand, which they suddenly had to face. Further limiting factors were the

geographical framework of the research (Hungary) and the randomness of the sample (due to the absence of a database about tourist attractions).

As a continuation of the empirical research, it is recommended to extend the study to more fields in tourism and to include accommodation, restaurants, transport companies. Extending the investigation to other elements of the tourist infrastructure can also provide an interesting basis for comparison: is there a difference in the resilience of the various service providers?

Setting up a new set of items is extending current understanding in research and contributes to deeper understanding of system dynamics needed to apply resilience thinking in tourism.

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