Knowledge Management for Managing Crisis in Tourism: Theoretical insights

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Abstract: Purpose: COVID-19 has caused an unprecedented crisis affecting the entire tourism industry. Accommodation, food, and travel sectors have been affected by the decreased number of visitors, which had a ripple effect on the financial situation of the whole industry. The purpose of this work is a better understanding of the role of knowledge management in terms of mitigating the crisis in the tourism sector, as well as a development of the framework that appropriately addresses the relevance of KM in crisis situations. Methodology: This study is based on the literature review of selected papers devoted to crisis management and knowledge management in the time of crisis. The research output is presented in the form of a new framework. This study focuses on the potential support of KM practices on the crisis management within a tourism industry. This work delivers the insights regarding the potential knowledge management application in tourism sector in terms of coping with high-volume crisis. Findings: The proposed framework shows that knowledge management practices can be potentially helpful in the time of crisis and may be integrated into a kind of framework for crisis management. Those practices need to be carefully adjusted to the particular situation and to the possibilities of their implementation, as well as to the type of crisis situation and its severity. Additionally, the importance of knowledge as a mean of support for tourism organizations in their decision-making process has been confirmed. Research limitations: Research output is limited to the theoretical contribution originating from the framework. This limitation is to be overcome in the future when the pilot study testing this framework is conducted. Practical implications: Findings of this study provides useful insights not only for the academic society and researchers, but also for tourism organizations striving for further development and improvement of its' internal processes and handling a crisis situation. Originality/value: This paper improves the overall understanding about the role of knowledge management during a crisis in tourism sector. Theoretical findings provided in this study can constitute the inspirational benchmark for the tourism organizations helping them to catch on the impact of KM practices on the crisis management.

Keywords: knowledge management, crisis management, tourism, theoretical framework

1. Introduction

A crisis situation is often associated with negative outcomes for organizations. Therefore, organizations try to prevent and avoid them and their consequences. However, this is not always possible. Although there are several studies investigating crisis management as a way to enhance resilience in tourism (Filimonau & De Coteau, 2020; Lew, 2014; Prayag, 2018), the new character of the COVID-19 pandemic has brought many attention of researchers and practitioners (Sigala, 2020; Škare et al, 2021; Yang et al, 2021). This crisis has lasted for quite a long time, with some better and worse scenarios for particular sectors, regions and countries.

As the COVID-19 pandemic has proved, tourism is one of the most vulnerable sectors to crisis impacts. According to UNWTO (2021), COVID-19 has caused severe damage to international tourism: an estimated loss of over US$ 2 trillion in global GDP, loss of US$ 1.3 trillion in export revenues from international tourism and unprecedented fall of international tourist arrivals by 73,9%. The crisis caused by the COVID-19 pandemic is seen as an event on a much larger scale than any previous crises (Higgins-Desbiolles, 2020). At the same time, it is already clear that the consequences of the COVID-19 will be serious and long-term; they will also require new measures and tools to help organizations overcome them (Zieba and Bongiovanni, 2022). Therefore, crisis management is becoming a key factor to minimize the impact of negative events and "is no longer an extra, but rather a principal and crucial function for tourism destinations and organizations" (Berbekova et al, 2021).

Taking the above into account, there is a need to provide organizations operating in this sector with some tools and techniques to handle not only this crisis, but also the ones appearing in the future. From the analysis conducted by the authors, it is clear that there are just few frameworks devoted to crisis management in the tourism industry (Faulkner, 2001; Ritchie, 2004; Paraskevas and Arendell, 2007; Zhang et al, 2011). According to the best knowledge of the authors, there is just one comprehensive framework for Knowledge-Based Crisis Management proposed by Racherla & Hu (2009). It can therefore be clearly stated that there is a gap on how knowledge management can be applied for the sake of crisis management in tourism organizations and there is

a need to develop a theoretical framework encompassing crisis management and knowledge management, taking into account the characteristics of the tourism sector.

To fill this knowledge gap, starting from the framework of Racherla & Hu (2009), we have developed a framework for Knowledge-oriented Crisis Management in the tourism industry, providing more insights on how KM can be integrated in it.

The paper develops as follows. First, the importance of KM in COVID-19 crisis and similar crises is discussed. Second, theoretical review of the crisis management frameworks is presented, followed by the proposal of the framework integrating KM and crisis management. Third, discussion and conclusions are elaborated and finally, the limitations and future research avenues are described.

2. Importance of KM in COVID-19 crisis and similar crises

The COVID-19 pandemic has brought many challenges in various areas of organizational functioning, including the way organizations manage their knowledge (Cegarra-Navarro et al, 2021; Bratianu and Bejinaru, 2021). At the same time, this crisis has appeared to require new methods and approaches to fight it, as this crisis is a crisis about knowledge (Tomé et al, 2021). At the beginning of the pandemic, individuals, organizations, whole countries and even global communities needed to learn how to act in such a situation and knowledge management has appeared to be crucial in this case as the one aiming to actively save lives (Ammirato et al, 2021). Knowledge in crisis management has several functions, as it may enhance defense mechanisms, limit potential damages, or even empower the return to the normal situation faster (Kir Kuščer et al, 2021).

According to Ng et al (2022), knowledge management in this crisis situation has contributed to many areas, such as: supporting organizations and its members to overcome initial problems coming with the crisis, helping in the application of the lessons learnt, supporting of the development of new knowledge, making a better link with the customers, obtaining new skills and becoming aware, as well as considering the future of organizations, also after the crisis (Ng et al, 2022). Additionally, KM may also support change management (so crucial in the face of a changing environment), optimization of operations, or creating innovations through organizational learning. It may also help in protecting the workplace and providing employees' safety (Schiuma et al, 2021).

Knowledge management can be implemented in organizations a variety of ways. Among the classifications of knowledge processes there is the one proposed by Probst et al. (2000), which includes knowledge localizing, knowledge acquisition, knowledge development, knowledge sharing and dissemination, knowledge exploitation and knowledge preservation. Those processes related to knowledge should be performed in a vicious cycle in organizations to make sure that the new and useful knowledge is constantly delivered to and applied by the organization. As far as types of knowledge are concerned, there are also many classifications available. Organizations might for example use the taxonomy by Lundvall and Johnson (1994) to analyze different types of knowledge important from their organizational perspective. According to these authors, knowledge can be of the following types: know-what, know-why, know-how, and know-who (Lundvall and Johnson, 1994). This taxonomy is useful in a crisis when organizations need to quickly identify key knowledge that is necessary for them to overcome this crisis.

3. Theoretical review of the crisis management frameworks

There is no single universally accepted definition of crisis in the literature due to several reasons, like different types of crises or different sectors where crises may appear. For example, a crisis in tourism can be defined as "any occurrence which can threaten the normal operation and conduct of tourism related businesses; damage a tourist destination's overall reputation for safety, attractiveness and comfort by negatively affecting visitors' perceptions of that destination" (Sönmez et al, 1994). Crises in tourism can be dangerous for the entire industry as they may cause a (temporary) suspension of operations, significant difficulties in traveling, and decrease of the tourist traffic for fear of safety or financial stability (Hopkins, 2021).

In a process of thorough literature review Huang, Tseng and Petrick (2007) identified 11 crisis management models (constructed by researchers in 1986 and 2006) – of which only 4 relate to the natural disaster type of crises. Ritchie and Jiang (2019) and Berbekova, Uysal and Assaf (2021) extend slightly this list and provide the examples of tourism crisis management models based on specific crisis context (i.e. malevolence-based crisis,

terrorism) and models integrating additional research domains (i.e. strategic planning, knowledge management, organizational learning).

Following the above studies, it can be stated that the 2000s witnessed a gradual surge in crisis management frameworks dealing with the tourism industry. In this paper, the number of analysed frameworks was limited, and the focus was made on four tourism-specific models (two of which go beyond the defined lists), namely framework by Faulkner (2001), Ritchie (2004), Zhang et al (2011) and Racherla et al (2009). These models were chosen due to their coverage of the broad tourism context and different types of crises they address. Thus, they constitute a substantive starting point in creating a new, comprehensive framework proposal.

Faulkner (2001) developed the first tourism-specific crisis management framework. Based on the previous crisis management-related literature and models by Fink (1986) and Roberts (1994), Faulkner identified six phases in crisis / disaster process:

1. pre-event: when action can be taken to prevent or potential disaster,
2. prodromal: when the disaster is imminent,
3. emergency: when action is necessary as disaster is felt,
4. intermediate: when focus is on restoring services and community to normal,
5. long-term (recovery): when recovery continues,
6. resolution: when a new improved state is established.

Along with the crisis lifecycle, Faulkner (2001) created a set of strategies for each phase to help industry prepare and respond to crises. In his tourism disaster framework, the author highlighted the importance of long-term disaster preparedness as the vital component in terms of responding to similar crises in the future. An important element of this model is the integration of tourist organizations with the local community in order to efficiently manage the crisis (Faulkner, 2001).

The crisis management framework by Ritchie (2004) follows the anatomy of crisis/disaster by Faulkner (2001) applied in the tourism sector. The model proposed by Ritchie simplifies the crisis lifecycle and introduces a 3-step framework (prevention & planning, strategic implementation, and resolution, evaluation & feedback) which includes the concepts from strategic planning and management. The framework provides an integrated and holistic approach when dealing with crises and disasters. Ritchie (2004) believes that proactive management is required while managing the crisis, especially the proactive planning and strategy formulation.

The crisis management for the tourism industry was later inspected by Zhang, He and Xue (2011). The authors developed the model for tourism destination crisis management based on Fink's (1986) stages of the crisis lifecycle. The model consists of 3 stages of activities for effective crisis management: pre-warning management, response management and mitigation management, and recovery management. It emphasizes the importance of the effective pre- and warning system, as well as media communication.

Table 1 outlines the frameworks for tourism crisis management described above. For the consistency and clarity of the analysis, these models were assigned to a crisis lifecycle proposed by Faulkner (2001).

Table 1: Frameworks for tourism crisis management

Phase in crisis/disaster process after Faulkner (2001)	Faulkner's (2001) model	Ritchie's (2004) model	Zhang's et al. (2011) model
Pre-event When action can be taken to prevent or mitigate the effects of potential disasters	*Precursors* Disaster management team appointment, education of industry, development of disaster management strategy	*Crisis / Disaster prevention and planning* Proactive planning and strategy formulation, scanning to planning	
Prodromal When it is apparent that disaster is imminent	*Mobilisation* Warning systems, secure facilities		*Pre-warning management* Establishing the sense of crisis, making crisis management plan and

Phase in crisis/disaster process after Faulkner (2001)	Faulkner's (2001) model	Ritchie's (2004) model	Zhang's et al. (2011) model
			developing crisis pre-warning system
Emergency The effect of the disaster is felt and action is necessary to protect people and property	*Action* Rescue procedures, monitoring and communication systems	*Strategic implementation* Strategy evaluation, crisis communication, resource management, collaborating with stakeholders	*Response management and mitigation management* Developing a rapid reaction mechanism, handling public relations, communication
Intermediate A point where short-term needs of people have been addressed and the main focus of the activity is to restore services and the community to normal	*Recovery* Clean-up and restoration, media communication strategy		
Long-term (recovery) Continuation of previous phase, but items that could not be attended to quickly are attended to at this stage. Post-mortem, self-analysis, healing	*Reconstruction and reassessment* Restoration of business and development of investment plans, debriefing to promote input to revisions of disaster strategies		
Resolution Routine restored or new improved state establishment	*Review*	*Resolution, evolution and feedback* Resolution and normality, organizational learning and feedback	*Recovery management* Normal operations, process of assessing short- and long-term consequences

Source: modified after Faulkner (2001, p. 140), Ritchie (2004, p. 674), Zhang et al. (2011, p. 347)

 In another study, Racherla and Hu (2009) developed a framework which applies knowledge management principles for improving crisis management efforts, namely Conceptual Framework for Knowledge-Based Crisis Management. Framework of Racherla and Hu (2011) follows the approach of Faulkner (2001), at the same time extending it by integrating the knowledge activities to the stages of the crises. The model employs the sources of knowledge (technocratic and organizational approach), KM strategies and knowledge integration factors into the crisis management lifecycle Racherla and Hu (2009).

Table 2 summarizes the assumptions of the framework by Racherla and Hu (2009). Among all the models, this framework is the only one that distinctly addresses the area of knowledge management.

Table 2: Conceptual Framework for Knowledge-Based Crisis Management by Racherla & Hu (2009)

Crisis Management Phases	**Crisis Prevention & Planning**	**Strategic Implementation**	**Resolution, Evaluation & Feedback**
Crisis Timeline	Pre-Crisis (Pre-event, Prodromal)	During Crisis (Emergency, Intermediate)	Post-Crisis (Long-Term, Resolution & Feedback)
Knowledge Management Strategies	Knowledge Acquisition, Creation & Storage	Knowledge Retrieval, Dissemination & Application	Knowledge Internalization & Feedback

Crisis Management Phases	Crisis Prevention & Planning	Strategic Implementation	Resolution, Evaluation & Feedback
KM Approach's Emphasis	Technocratic	Technocratic & Organizational	Organizational

Source: modified after Racherla et al (2009, p. 567)

As it can be seen in Table 2, according to Racherla at al. (2009), there are several knowledge management strategies that can be useful in particular stages of a crisis situation, namely knowledge acquisition, creation and storage, knowledge retrieval, dissemination and application, and knowledge internalization and feedback.

4. Framework proposal

By integrating the elements of approaches delivered by Faulkner (2001), Ritchie (2004), Lundvall & Johnson (1994) and Probst et al (2000) described in this paper, a Strategic Knowledge-oriented Crisis Management Framework (Figure 1) has been developed. This conceptual model is a starting point for knowledge-based activities that are recommended to undertake at different phases of a crisis. It provides guidance to tourism organizations on how to effectively manage a crisis using the KM approach.

The proposed framework is based on the circular process flow composed of 3 main stages: Prevention & planning, Strategic implementation and Resolution, evaluation & feedback (after: Ritchie, 2004). Each of these stages is assigned to the crisis phase (after: Faulkner, 2001), the type of knowledge (after: Lundvall & Johnson, 1994) and the KM process (after: Probst et al, 2000). The key component of the entire model is the Organizational Learning approach, which is essential for the development of effective tourism crisis strategies (Blackman and Ritchie, 2008).

4.1 Prevention & planning

It is a preparatory stage in which the organization collects and analyzes information regarding possible crisis events. This stage refers to 2 crisis phases (pre-event and prodromal), in which it is possible to take actions to anticipate the crisis itself and stop or limit its possible impacts (Ritchie, 2004).

The prevention & planning stage is a proactive process of scanning the environment, preparing forecasts, strategies, and possible action scenarios (also using modeling and simulation), as well as hazard mapping (Ritchie, 2004). This should be undertaken considering the available resources and the interests of stakeholders.

At this stage, organization also tries to obtain different types of knowledge, namely know-what, know-why, know-how, and know-who (Lundvall and Johnson, 1994), by answering the following questions: what can happen? why it can happen? how can we prepare for what is about to happen? and who can help us to prepare and to handle the crisis when it happens? There are also some KM processes that should be applied here, namely knowledge localizing and knowledge acquisition (Probst et al, 2000).

4.2 Strategic implementation

As soon as a crisis becomes apparent, immediate action is required. It is fundamental to evaluate the possible strategies and select the one that fits best (Ritchie, 2004). The COVID-10 crisis has clearly shown that the high dynamics of changes and the difficulty of predicting them are an inherent part of the crisis event. Therefore, quick decisions, full flexibility in operation, continual monitoring, and the ongoing data acquisition from within the organization and external sources are a must (Ritchie, 2004).

During the crisis event, it is vital to ensure the fluent information flow and crisis communication with the media as they play a critical role in crisis situations (Faulkner, 2001). Effective communication also applies to internal and external stakeholders. The implementation of a crisis communication strategy and understanding and collaborating with groups of stakeholders (employees, decision makers, tourism industry, representatives of local governments, tourists, media) are crucial in planning and managing a crisis in the tourism industry (Ritchie, 2004).

At this stage, the tourism organization goes through 3 phases of the crisis: emergency, intermediate and long-term (recovery), in which it takes actions to address the short-term needs of people and the company itself (Faulkner, 2001).

At this stage also organization tries to obtain different types of knowledge (Lundvall and Johnson, 1994), by answering the following questions: what do we do at each stage of the crisis? why we should behave in a certain way? how can we overcome the challenges faced? who is needed for each activity? do we have the resources? do we need to hire some staff/purchase certain resources? The KM processes most useful here are knowledge development, knowledge application, knowledge sharing and dissemination (Probst et al, 2000).

4.3 Resolution, evaluation & feedback

Ritchie (2004) points out that the main goal of the organization in the crisis management process is to take control over the crisis or to stop it completely. The resolution, evaluation & feedback stage is the moment of regaining such control. At this stage, the activities of the organization are restored to their normal or improved state (Faulkner, 2001).

An important step in the process of overcoming the crisis is a retrospective evaluation of the effectiveness of prior actions. Assessment of strategies and responses, revision of resources, as well as learning from crisis experience enable decision makers to introduce essential changes and adapt strategies to the future crisis situations (Ritchie, 2004). Crises seen as "agents of change" (Ritchie, 2004) stimulate the implementation of changes in the organization environment and making the corrections of its standard activities, thus preparing the company for potential crisis events in the future.

At this stage also organization tries to obtain different types of knowledge (Lundvall and Johnson, 1994), by answering the following questions: what has worked and what has not? what activities should be undertaken for the future? why this happened? how this affected our company? how the new solutions can be integrated with our regular activities? who is responsible for it? Organization should try to implement the KM processes such as knowledge exploitation and knowledge preservation (Probst et al, 2000).

4.4 Organizational learning

Organizational learning is "the process of creating, retaining, and transferring knowledge within an organization" (Rao et al, 2018), therefore it is a key context at every stage within the Strategic Knowledge-oriented Crisis Management Framework. It aims at creating new knowledge to assist future tourism crisis strategies (Blackman and Ritchie, 2008). This emergent knowledge enables the revision of actions taken and can be used by the organization as an incentive to change (Blackman and Ritchie, 2008).

Tourism organizations lead up to acquire new knowledge in crisis situations (Ghaderi et al, 2014), and so systematic learning processes and ongoing evaluation of actions play a significant role. Questioning the existing approaches, reflecting on the current knowledge stock, and continual collecting data (Blackman and Ritchie, 2008) are tools that can be used by organizations at every stage of the crisis and that support organizational learning.

In a proposed framework the organizational learning is understood as a process occurring before, during, and after a crisis. It shapes the way a crisis is experienced and how an organization changes its routine and adapts strategies to avoid repeating the same mistakes in the future.
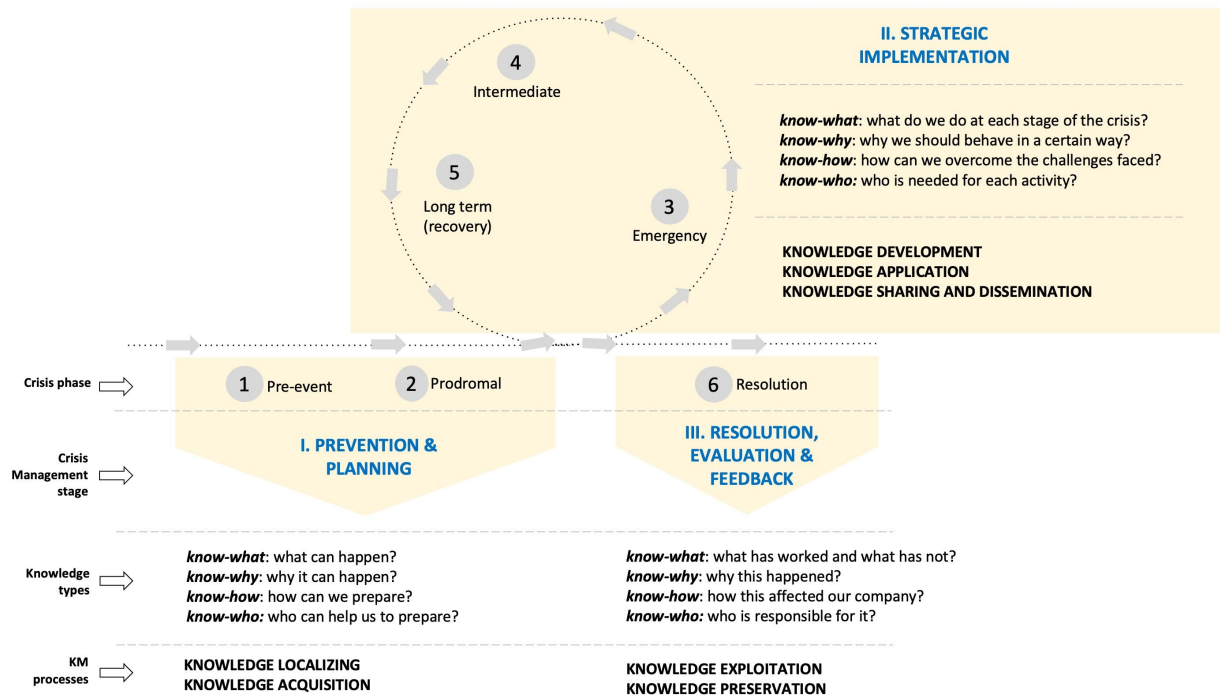
Figure 1: Strategic Knowledge-oriented Crisis Management Framework

Sources: Own elaboration, on the basis of Probst et al (2000), Lundvall & Johnson (1994), Faulkner (2001) and Ritchie (2004).

5. Discussion and conclusions

The proposed framework integrates the Crisis Management approach with Knowledge Management and Organizational Learning. The recent and severe crises such as the COVID-19 crisis or the war in Ukraine have shown that organizations need to be prepared for sudden and unfavorable events and their long-term impact. The framework proposed in this paper is an attempt to provide a tool for organizations not only to handle the crisis situation when it has already occurred, but also to get prepared for such an instance before. Organizations will need in the future more tools and support of the academia in handling their operations in the VUCA world, characterized with volatility, uncertainty, complexity and ambiguity (Mack, 2015 et al.). The proposed framework is an example of such a tool, which can help them in handling some of this uncertainty, complexity and ambiguity of any crisis they will face.

On the basis of the analyzed publications, it can also be stated that Knowledge Management plays a significant role while managing the crisis in tourism industry and constitutes a mean of support for tourism organizations in their decision-making processes. KM is a helpful tool in a crisis situation and for example during the pandemics, Knowledge Management appeared to be crucial to prevent infections and deaths (Ammirato et al, 2021). Also, the role of organizational learning has been understated so far, for example the framework offered by Racherla and Hu (2009) addresses this area only at a general level. At the same time, it is a potentially useful element in the process of crisis handling and preventing (Blackman & Ritchie, 2008). It also should be noted that the stages of the crisis and its management presented in this framework may be blurred and integrated in time – this makes handling the crisis situation even more complex. All in all, the proposed framework is an outcome of the literature analysis and an attempt to integrate the inputs from various fields (namely crisis management and knowledge management) into a tool helping organizations to deal with crisis situation before, during and after the crisis.

6. Limitations and future research areas

This study naturally has several limitations. First of all, the presented framework is of a conceptual character and needs to be empirically validated. Second, the analysis performed had not been based on a systematic literature review, but on a structured one. Therefore, some potential further developments are possible in due course.

Finally, the crisis used as the background of this framework is the COVID-19 pandemic and it is possible that other crises might be of different character.

Among the further research areas there is definitely the development of this framework for the sake of other sectors. Although the framework seems to be of a universal character, it is based on the literature devoted to the tourism sector. Therefore, for its better universality, literature devoted to other sectors should be analyzed and somehow integrated into the framework.

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