



## Signal detection as the first line of defence in tourism crisis management

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### H I G H L I G H T S

- ▶ We develop a theoretical framework on crisis signal detection.
- ▶ We test it using critical incident interviews with 16 c-suite tourism executives.
- ▶ Crisis signal detection is acknowledged as an organization's first line of defence.
- ▶ A combination of core, ad hoc and expert detector networks is necessary.
- ▶ We identify challenges in crisis signal detection and offer recommendations.

### A R T I C L E I N F O

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### A B S T R A C T

The vulnerability of the tourism industry to a range of crises has attracted many scholars to investigate the crisis strategies and practices employed by destinations and tourism organizations mainly with regards to crisis preparedness, containment and damage limitation, crisis recovery and subsequent learning. One over-looked area has been that of crisis signal detection. This paper proposes a three-stage conceptual framework for crisis signal detection consisting of signal scanning, capture and transmission to the crisis response centre. With this framework as a basis, 16 corporate level executives of international tourism organizations were interviewed in order to explore the significance of signal detection in their crisis management practice and the challenges faced in each of these three stages. The findings offer insights into the design of crisis management mechanisms and open areas for further research.

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### 1. Introduction

The tourism industry is prone to crises as it is highly fragmented and complex with many interdependencies among its sectors. These interdependencies mean that a crisis in a tourism sector will have repercussions in the others. Henderson (2007, p. 8) argued that a transport accident, a hotel fire or a street riot in which tourists will be caught up will impact tourist arrivals in a destination with impacts on accommodation, attraction and transport providers as well as a number of other tourism stakeholders such as tour operators, travel agents and the destination's tourism authorities. Similarly, events that are not directly connected to tourism may have a huge impact on tourism sectors as witnessed in the 1997 Asian financial crisis (De Sausmarez, 2004), the 2001 World Trade Centre terrorist attack (Ito & Lee, 2005), the SARS epidemic (Pine & McKercher, 2004), the Indian Ocean tsunami (Rittichainuwat, 2006). It is noteworthy, however, that most crises do not occur

suddenly. Mitroff (1988, p. 18) observed that "long before its actual occurrence, a crisis sends off a repeated and persistent trail of early warning signals" which could be picked up at a time where there is still opportunity to prevent it from occurring or to take measures that will minimise its impact. These early warning or crisis signals are pieces of information indicating deviation from normalcy (e.g., financial indicators exceeding a threshold, abnormal patterns of social behaviour, etc.) that may escalate and lead to a crisis. For example, a receding ocean following an earthquake felt in the coast may be an indication of an approaching tsunami, an unusually increased number of patients with respiratory problems admitted in a hospital may be an indication of an emerging epidemic and an increased number of clashes between religious sects in a destination may indicate possible political unrest. Early detection of these signals and timely response to them might have saved a good part of the 230,000 lives claimed by the 2004 Indian Ocean tsunami, of the 41% of tourism GDP that Hong Kong has lost due to SARS in 2003 or of the more than \$600 million Bahrain has lost due to the cancellation of the Formula 1 Grand Prix in 2011.

Several scholars in the field of crisis management (Boin, 2003; Boin & Lagadec, 2000; Takeda & Helms, 2006) have suggested that

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as crises are dynamic in nature with events morphing at varying rates of acceleration and deceleration. Small changes in the parameters of a crisis may ultimately cause enormous changes in its outcome as minute initial differences are magnified and transformed by the dynamical processes at work (“butterfly effect”, Lorenz, 1993) rendering the crisis extremely sensitive to the initial conditions of its evolution (Paraskevas, 2006). This sensitivity underlines the importance of early interventions in crisis development and, therefore, of processes able to capture the crisis dynamism through the detection, transmission and interpretation of the signals it emanates. With this thinking, Mitroff (1988) proposed a five phase (“five mechanisms” – in his terms) crisis management model: signal detection; preparation/prevention; containment (damage limitation); recovery; and learning. This model pre-supposes a signal detection mechanism for better crisis preparedness and even prevention of a crisis.

The subject of tourism crises has attracted the attention of several scholars in the field resulting in a significant body of literature. These studies have contributed a lot in evaluating the impact of crises on tourism (e.g., Blake & Sinclair, 2003; Eugenio-Martin, Sinclair, & Yeoman, 2005; Pizam & Fleischer, 2002), addressing particular aspects of crisis management, mainly destination recovery (e.g., Beirman, 2003; Israeli & Reichel, 2003; Prideaux, 2004) or focussing on lessons learned from crises (e.g., De Sausmarez, 2004; Henderson, 2003a,b; Miller & Ritchie, 2003). However none of them has looked at crisis signals and what Mitroff (1988) calls “crisis detection mechanism”. Even the few studies that propose more strategic approaches to tourism crisis/disaster management (Faulkner, 2001; Ritchie, 2004) just touch upon crisis signal detection. Key research questions such as how should a signal detection mechanism be designed, what types of detectors it should use and for what signals it should look and where, largely remain with no answer.

This paper aims to narrow this research gap, by exploring the ‘mechanism’ of crisis signal detection in the context of the tourism organizations. We first look at the crisis literature within tourism and we develop a conceptual framework for the detection process of crisis signals based on a number of theories including the information communication theory and the signal detection theory. We then conduct a fieldwork with 16 corporate level executives of international tourism organizations in order to explore the significance of signal detection in their crisis management practice, the way it is designed and the challenges they are facing. The paper concludes with suggestions for further research on the topic.

## 2. Crisis management in tourism

As with the generic crisis management literature, Santana (2004, p. 307) concluded that ‘the [tourism] literature provides no generally accepted definition of crisis’ since there are several definitions for the term “tourism crisis” (e.g., Beirman, 2003; Faulkner, 2001; Glaesser, 2003; Henderson, 2007; Ritchie, 2004). The more comprehensive definition, however, is perhaps offered by Sönmez, Backman, and Allen (1994) who state that a tourism crisis is:

“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; and, in turn, cause a downturn in the local travel and tourism economy and interrupt the continuity of business operations for the local travel and tourism industry by the reduction in tourist arrivals and expenditures.” (Sönmez et al., 1994, p. 22)

There are four clearly defined streams of research in the area of crisis management in tourism. The first stream of research focuses

on the impact of crises on tourism and started with Mihalic (1999) looking at the impact of the war in Yugoslavia’s tourism industry and Henderson (1999a,b,c) evaluating the impact of Asian financial crisis on tourism. A study with significant contribution in understanding the impact of terrorism in tourism was undertaken by Pizam and Smith (2000) who did a comprehensive analysis of terrorism events around the world during the period between 1985 and 1998. These researchers described the crisis events in detail offering authors’ analyses and participants’ insights about the crises under investigation as well as evaluation of its impacts on the economies of different destinations leading them to suggestions about the need for post-crisis response and actions to minimise the impacts of crises on tourism organizations and destinations.

The second stream of research focuses on the recovery aspect of crisis management by rebuilding the destination image through appropriate crisis communications and marketing initiatives (Beirman, 2003; Fall, 2004; Fall & Massey, 2006; Frisby, 2002), identifying ways by which destinations can re-establish tourist confidence (Armstrong & Ritchie, 2008; Cavlek, 2002; Huan, Beaman, & Shelby, 2004) and by implementing specific business recovery strategies (Anderson, 2006; Leung & Lam, 2004; Litvin & Alderson, 2003; Lo, Chung, & Law, 2006). Researchers in this stream also identified the importance of the development of crisis management teams, disaster management plan testing, employee training for crises and the protection of guests from disasters (Brewton, 1987; Burby & Wagner, 1996; Drabek, 1995) at the post-crisis stage. Significant contributions were made by these researchers who studied the damage limitation practices of tourism organizations. This stream is taking a more reactive approach to crisis management thus completely ignoring the possibility of crisis signals and their detection.

The third stream of crisis management research highlights the importance of pre-crisis stage and argues that both hospitality organizations and tourist destinations need to understand the causes and consequences of previous crises in order to plan and prepare themselves for the future ones. The main focus of researchers in this stream has been the phenomenon of global terrorism (Cushnahan, 2004; Stafford, Yu, & Armoo, 2002; Taylor & Enz, 2002; etc.) as well as the two great epidemics (Foot and Mouth Disease and Severe Acute Respiratory Syndrome) which affected tourism not only in the UK, Southeast Asia and Canada but globally (Coles, 2003; Henderson, 2004; Kim, Chun, & Lee, 2005; McKercher & Chon, 2004; Ritchie, Dorell, Miller, & Miller, 2004; Sharpley & Craven, 2001; etc.). Natural disasters ranging from hurricanes in the US (Chandler, 2004) to wildfires and floods in Australia (Armstrong, 2005; Armstrong & Ritchie, 2005; Faulkner & Vikulov, 2001) and to the devastating Indian Ocean Tsunami (Carlsen, 2006; Henderson, 2005; Rittichainuwat, 2006; etc.) have also been investigated. The study of these crises was aiming mainly at evaluating the industry’s response and at identifying best practice to be used in similar situations in the future (Armstrong, 2005; Henderson, 2003a,b; Henderson, 2004; Johnson-Tew, Lu, Tolomiczenko, & Gellatly, 2008). Scholars in this stream maintain that learning from the previous crises is crucial for the management of a crisis. Although this stream sets a good foundation in understanding the importance of preparedness by learning from the previous crises as well as potentially best practice in crisis response, the relevant studies do not propose a holistic crisis management strategy or a framework capturing the different “mechanisms” of crisis management, thus leaving signal detection largely out of their discussion.

The last stream of the literature integrates the extant knowledge of generic crisis and disaster management, and proposes succinct strategies, models and frameworks for a ‘holistic’ crisis/disaster management in tourism (for example, Faulkner, 2001; Glaesser, 2003; Ritchie, 2004). Drawing on insights from the broader

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