



Navigating the uncharted: A crisis response mix to creeping ‘unknowns’

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ABSTRACT

Creeping crises have received limited attention in crisis management. With a backdrop of COVID-19, we explore how tourism organisations can address unprecedented creeping crises. We propose and test a creeping crisis response matrix qualitatively and quantitatively by analysing 108 earnings calls from 22 hotel groups covering the first 16 months of the pandemic. Some cannot detect creeping crises during the incubation periods or the later re-emergence, whereas early exposure gives an advantage in crisis response. Contrary to conventional wisdom, organisational responses to unknown crises are not always reactive, with organisations deploying a varied mix of responses (reactive, adaptive, protective and proactive) even in the early stages of a crisis. As the framing of the crisis improves, crisis responses shift from survival to full-on experimentation, to response by design and then to response by protocol. The proposed matrix can be used as a response roadmap for navigating future, unknown, creeping crises.

1. Introduction

The advent of the COVID-19 pandemic triggered a large number of hospitality and tourism studies of the phenomenon and its impact on the sector. Regardless of the valuable contributions, some scholars contend that “theoretical advancements and managerial implications of such research should not be sacrificed at the expense of research opportunities that the context of COVID-19 presents” (Prayag, 2020, p.183). Others expect this research to underpin new theoretical and operational paradigms that go “well beyond what is envisioned by traditional theories of crisis management, communication and recovery” (Zopiatis et al., 2021, p. 279). In light of these comments, this study seeks to use the pandemic as the backdrop to explore crisis management from an angle that meets the expectations of both these views.

Seen as a developmental process with root causes, an incubation phase, an acute phase, and an aftermath, the COVID-19 pandemic can be classified as a transboundary creeping crisis (Boin, McConnell, & 't Hart, 2021). This crisis stretched over a long period of time and exceeded the geographical, policy, cultural, public-private and legal boundaries that would normally enable organisations to manage such a crisis. Creeping crises have not received much attention in crisis management research although they present some unique characteristics when compared to abrupt crises (Hwang & Lichtenthal, 2000). Creeping crises are similar to the notion of a slow burning, python-type crisis (Pforr & Hosie, 2008)

in that they have a long incubation time, and their escalation is unpredictable, yet are different from Python crises in that they may keep simmering long after their acute phase is over. What seems like the acute phase in a creeping crisis may only be a precursor either to further escalation or to a gradual resolution of the crisis. Creeping crises do not have a clear beginning, or a clear end and they are unprecedented or even ‘inconceivable’ (Dror et al., 2001). They may also remain undetected for a while or be recognised as threatening but be insufficiently addressed (Boin, McConnell, & 't Hart, 2021). In contrast to creeping crises, abrupt crises are viewed as discreet events, usually characterised as fast burning, cobra-type situations (Pforr & Hosie, 2008) and are clearly delineated with a beginning and an end (Boin, Ekengren, & Rhinard, 2020). Conventional crisis management thinking expects proactive risk management measures to prevent these crises before they manifest themselves and reactive crisis management actions to contain them and limit their damage once they erupt and escalate (Paraskevas & Quek, 2019; Ritchie, 2008). But while the ‘next pandemic’ generally features on everybody’s risk register, COVID-19’s “creeping” characteristics posed novel and complex challenges, even to those well-versed in the management of “acute” crises (Boin, Lodge, & Luesink, 2020, p. 190), which raises the question of “how prepared are we for an ‘unknown unknown’?” (p.199).

Bringing this question to the tourism industry context, how can tourism organisations address a creeping crisis when: (a) they often

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cannot detect the crisis when it is in the incubation phase because they don't know it exists or cannot even imagine its existence; (b) they cannot prevent the crisis from erupting using proactive risk management; and (c) their crisis management plans will be insufficient if/when the crisis does escalate? We attempt, empirically, to answer this question by analysing the COVID-19 responses of 22 hotel groups (each listed in the NYSE and/or NASDAQ) as presented in 108 transcripts of their quarterly earnings calls to investors during the first 16 months of the pandemic. By bringing together three well-established strategic frameworks (Rumsfeld Matrix, Choice and Determinism Matrix and Cynefin framework), we developed a crisis response matrix in which we plotted the crisis response choices made by the 22 organisations as their understandings of the crisis evolved with time. With this matrix, we respond to Ritchie & Jiang (2019) who call for further development in conceptual model building, testing and refinement through empirical studies and, in this case, through more theoretically-informed COVID-19 research (Zenker & Kock, 2020). We argue that our matrix can be used as a potential roadmap for tourism organisations to develop or enhance the crisis management capabilities and repertoire of responses necessary to address unknown creeping crises and other emerging crises in the future.

2. Theoretical background

Boin, Ekengren, & Rhinard (2021) argue that there is a need for a process-oriented focus on the complexity of creeping crises, including their non-linear evolution and sudden manifestations. The key characteristic of a creeping crisis is the absence of attention it receives, which stems from a lack of understanding of the threat it poses when it is in incubation, until its damage potential passes a tipping point that marks the threshold where it is recognised. By this point in time, in almost every case, the crisis is in the acute phase. But as Boin, Ekengren, & Rhinard (2020, p. 125) point out: "attention is one thing, but what really counts is a response". In the absence of verified knowledge, a planned crisis response cannot work since the way in which the crisis will evolve is unpredictable and uncontrollable. Consequently, organisations are subject to external environmental forces (which cause the sudden manifestation of a creeping crisis) and have limited ability to react. In strategic management language, this translates to high environmental determinism and low strategic choice (Bourgeois, 1984). The extent of environmental determinism, combined with an organisation's crisis response choices, will define its behaviours at the different phases of a creeping crisis. A useful framework for a process-oriented analysis of a creeping crisis would be Hrebiniak and Joyce's (1985) Adaptive Matrix in which they consider determinism and choice as orthogonal, independent constructs instead of two ends of a unidimensional continuum. Their 2×2 matrix consists of four quadrants in which the organisation experiences the following conditions: Quadrant I: High determinism and low strategic choice; Quadrant II: High determinism and high strategic choice; Quadrant III: Low determinism and high strategic choice and Quadrant IV: Low determinism and low strategic choice. In a crisis situation, there is always a negotiation between the environment (the crisis) and the crisis management team in the organisation (crisis response choice).

One factor that defines the level of environmental determinism in a crisis situation is the knowledge the organisation has about the crisis it is responding to. Pandemics have been on the radar of risk managers as low-probability, high-impact contingencies for a few decades now and diseases like SARS (followed by Ebola, H1N1, Zika and others) have been viewed as forerunners of things to come, with experts warning that the next pandemic was overdue (e.g., Baekkeskov & Rubin, 2014). Yet, in the case of the COVID-19 pandemic, all organisations, including the very institutions designated to respond to such a risk, were initially found to be in a situation of non-response because they could not imagine, nor predict, a crisis of such magnitude. Van der Heijden (2005, p. 93), in his seminal work on scenario planning, talks about "unknowables, where we cannot even imagine the event". This unknowable is a

state of risk knowledge that complements the three categories of threats described by the US Secretary of Defence, Donald Rumsfeld, and referenced in the risk forecasting literature as the 'Rumsfeld Matrix' (de Valk & Goldbach, 2021), namely: i) things we know we know (known-knowns); ii) things we know we do not know (known-unknowns); and iii) things we do not know we do not know (unknown-unknowns). An organisation's crisis response will vary across the four quadrants of the Adaptive Matrix depending on its knowledge of the threat, with unknowable-unknowns and unknown-unknowns implying lower predictability and controllability and, therefore, high environmental determinism. In situations with known-unknowns and known-knowns, there is higher predictability and controllability and, therefore, low environmental determinism.

Strategic choice is the organisational decision-making and available strategic options at a given time (Hrebiniak and Joyce's, 1985). The types of strategic choice -what organisations can control and affect-vary significantly between quadrants upon the organisation-environment context dynamic. Environmental determinism refers to factors that influence organisational decision-making. There are few viable strategic choices available to organisations in Quadrant I. Autonomy is low due to powerful external constraints delimiting choice toward organisational efforts to alter dependencies on the environment. In Quadrant II, the number of strategic choices available is medium, while is highest in Quadrant III, as the choice coexists with externally generated constraints. The type of strategic choice varies significantly given the distinct environmental conditions in Quadrant II and III, as organisations would move to Quadrant III only when strategic choice reduces its vulnerabilities and enables them to gain additional influence over the environment. In Quadrant IV, despite a lack of threat in a relatively "placid" environment, there are few strategic choices available due to internal constraints such as insufficient or inadequate capabilities that inhibit decision-making and prevent the organisation from acting.

Another useful concept in the exploration of the relationship between environmental determinism and creeping crisis response is the nature of the environment during the crisis's manifestation. The Cynefin Framework (Snowden and Boone, 2007) distinguishes between unordered environments (with no clearly understandable links between causes and effects) and ordered environments with clearly understandable links. The framework further divides environments into chaotic, complex, complicated and simple (or obvious), connecting each one with behavioural patterns and recommendations for problem solving. Chaotic and complex contexts are unordered and require responses based on emerging patterns, whereas complicated and obvious contexts assume a better-informed understanding of the situation and allow for fact-based responses (Snowden and Boone, 2007). A completely new and 'unknown' crisis situation would be a 'complex' crisis but as more knowledge about the crisis is gained, crisis responses would become better-informed, and the crisis would gradually become 'complicated' before entering the realm of 'obvious'. For example, in the face of a cascading disaster situation (earthquake, tsunami, nuclear disaster) following the Tohoku earthquake in 2011, individual Japanese ministries and agencies – including the National Police Agency, the Ministry of Land, Infrastructure, Transport and Tourism, the Fire and Disaster Management Agency, the Self Defence Force and the Coast Guard – launched their own response efforts, operating mostly independently from each other in the prefectural capitals of Fukushima, Miyagi, and Iwate thus increasing the complexity of the crisis and the crisis response (Shimizu, 2012). Once a common situational awareness was achieved, they were still facing a complicated crisis situation of three disasters, but the response efforts were better coordinated by shared knowledge and understanding with all actors moving to the same direction.

Bringing these three frameworks together gives a starting point for analysis of a creeping crisis response, as summarised in Fig. 1.

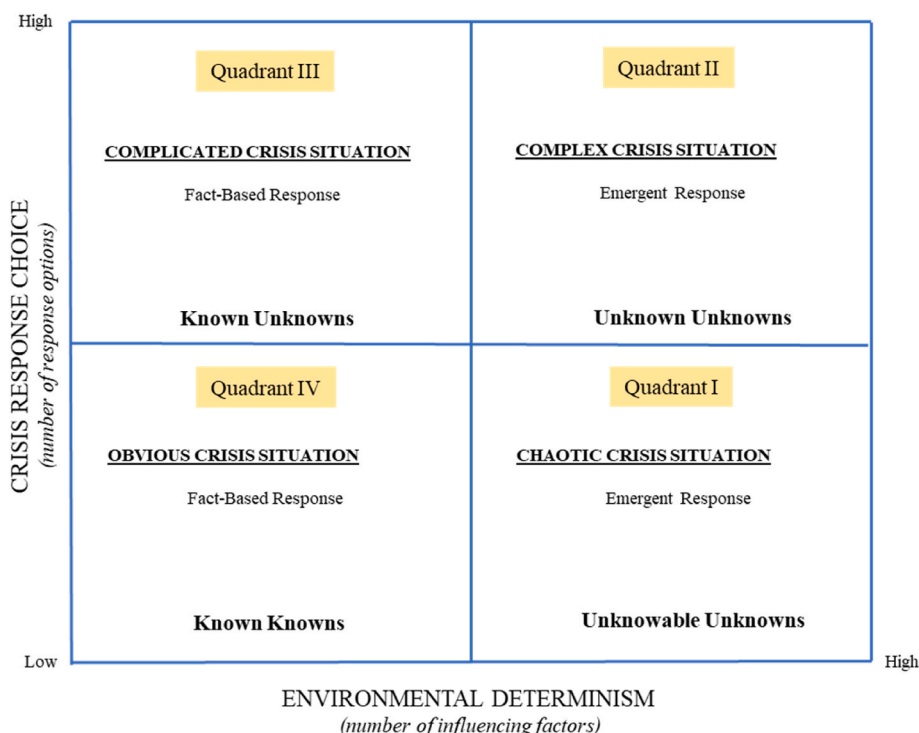


Fig. 1. An analytical framework for creeping crisis response.

3. Research design

This study adopted a mixed-method approach with qualitative content analysis of the earnings calls of 22 organisations, followed by quantitative analysis to confirm and enrich the proposed creeping crisis response framework. Earnings calls are widely recognised voluntary disclosures of organisations listed in the stock market providing investors with useful and relevant information (Matsumoto et al., 2011). They are divided in two parts. The first part is the corporate presentation that consists of the organisation’s quarterly financial and operational performance presentation by corporate executives to the investment community. In the second part, Questions & Answers, financial analysts have the opportunity to ask questions to the executives, who have to answer them immediately. In contrast to the ‘static’ and scripted nature of formal documents (annual reports, press releases and SEC filings), the earnings call is more ‘dynamic’ and less prescribed with executives’ views emerging more spontaneously (Blau et al., 2015). They were deemed, therefore, an appropriate and reliable source for our study. The study took a novel approach in terms of: (a) the data set selected: published accounts of crisis response strategies that remain underutilised in the crisis management literature (Ritchie & Jiang, 2019); and (b) methods of analysis: beyond the predominant quantitative research (Wut et al., 2021). A purposive, criterion-based approach was used to select 22 hotel organisations (hotel brands/casinos and hotel real estate investment trusts (REITs)) operating in diverse geographies (with and without exposure to the Chinese market). The top 10 organisations were selected based on their market capitalisation data, which was drawn from the New York Stock Exchange (NYSE) and the National Association of Securities Dealers Automated Quotations (NASDAQ) company listings. GreenTree Hospitality and Melco were also selected to complement the Huazhu Group, which was already in the list, to gain a richer perspective from hotel organisations with sole exposure in the Chinese market (Table 1). For each of the 22 organisations, we reviewed five quarterly earnings calls used by the organisations’ senior management to communicate with investors, from Q4 2019 (when COVID-19 was an ‘unknowable unknown’ crisis) to Q4-2020 (when the pandemic moved

Table 1
Analysed hotel groups.

Hotel Brands <ul style="list-style-type: none"> • Accor • GreenTree Hospitality Group • Huazhu Group • Hilton Worldwide Holdings • Hyatt Hotels Corporation • InterContinental Hotels Group • Marriott International Hotel Casino Groups • Caesars Entertainment • Las Vegas Sands • Melco Resorts & Entertainment • MGM Resorts International • Wynn Resorts 	Hotel REITs <ul style="list-style-type: none"> • Apple Hospitality • Diamondrock Hospitality • Host Hotels & Resorts • Park Hotels & Resorts • Pebblebrook Hotel Trust • RLJ Lodging Trust • Ryman Hospitality • Service Properties Trust • Sunstone Hotel Investors • Xenia Hotels & Resorts
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to a more ‘known’ realm).

Textual analysis of quarterly earnings calls is a novel research approach that has recently been used by researchers in the fields of management, accounting and finance (e.g., Bochkay et al., 2020; Mangalaraj et al., 2022). The analysis conducted by this study used the entire conference calls, including both the presentations and the question-and-answer sessions, and adapted the approach introduced by Hassan et al. (2019) by doing both a qualitative and quantitative analysis of the coded text segments. A total of 108 of the 110 earnings calls were analysed, distributed across five quarters; it was not possible to obtain two of the quarterly earnings calls from one of the organisations in the sample. In one of our robustness checks we dropped that organisation for the analysis, and we observed no significant change in the results. We can conclude that the lack of two quarters does not significantly differentiate the findings from the data collected from the remaining 108 transcripts. The analysis period (from Q4 2019 to Q4-2020) was selected based on the timeline of events related with the spread of the virus and the international response to it (Appendix 1).

Qualitative analysis: understanding of crisis, perceived environmental determinism and crisis response choice.

The purpose of this analysis was to evaluate, from the way the hotel

groups' C-suites talked to their investment communities in the earnings calls, the levels of understanding of the C-suites regarding COVID-19 as a crisis including how they perceived environmental determinism at each Period and the types of response strategies they adopted. In this research, the strategic choice is framed under crisis response, and thus, it refers to the number and type of strategic crisis response choices available to organisations. We employed the text analytics software MAXQDA© to perform manual qualitative content analysis and followed the Gioia methodology to ensure qualitative rigour with a series of iterative stages of inductive and deductive reasoning (Gioia et al., 2013). Following convention, independent coding on a sample of nine earnings calls was initially performed, diverging opinions were discussed and consensus was achieved and, then, independent coding continued. Researcher-centric initial data coding of first-order terms was employed and codes were grouped into abstract second-order themes. The researchers met several times to reach maximum consensual interpretation of the overall results, distilling the results into overarching dimensions.

3.1. Quantitative analysis: Perceived environmental determinism and crisis response choice across time

Once the qualitative data was generated, with 6,544 text segments coded, all 1st-order themes were transformed into binary quantitative data, based on whether each 1st-order term was present (score of 1) or not present (score of 0) in each earnings call. If a 1st-order theme was repeated in a transcript, it was counted only once. Unfavourable environmental factors were given a positive sign as those increased environmental determinism. Conversely, favourable factors were given a negative sign.

Strategic choice was framed as crisis response strategies, and consequently, it refers to the number and type of strategic crisis responses available to organisations. Response strategies in each earnings call were coded inductively and deductively and then codes were grouped into abstract second-order themes, initially labelled as 'reactive' and 'proactive'. The qualitative information was then translated into a binary score for each 1st-order and 2nd-order theme, based on whether each type of strategy was present (score of 1) or not (score of 0) in each transcript, which enabled later the quantitative analysis.

In the case of strategic choice, we calculate a "strategy mix" for each organisation and Period. We calculated the percentage of each strategic choice (reactive, adaptive, protective, and proactive) out of the total number of strategies implemented. The thresholds for environmental determinism (X-axis) and crisis response choice (Y-axis) were then calculated on a 2 × 2 matrix (like Hrebiniak and Joyce's (1985) Adaptive Matrix) based on the average scores of the two axes' factors across all 108 earnings calls. The sample organisations were then plotted on the matrix and changes across periods were monitored, to identify their aggregate movement across the quadrants per Period. Using Stata v.16A software, a simple linear regression analysis of these two variables was performed to provide empirical confirmation of the movement of the organisations across the matrix. Simple linear regressions were also applied to explore how the type of an organisation (brand, casino or REIT) and its exposure to the Chinese market affected its level of perceived environmental determinism (based on the number of factors mentioned in its calls) and the number of crisis responses adopted.

To monitor the types of crisis responses the sample organisations chose to implement while moving across the matrix, we calculated a crisis response mix for each period and organisation type based on the percentage of crisis response type over the total number of crisis responses. Multiple linear regression analysis with Period fixed effects on the crisis response mix enabled an evaluation of the evolution of crisis response over time and per matrix quadrant. Both regressions were controlled by: i) organisation type; and ii) exposure or non-exposure to the Chinese market. Multiple paired t-tests were also performed to identify the predominant type of crisis response per Period and per

Quadrant.

4. Results

4.1. Environmental determinism, strategic choice and understanding of risk

4.1.1. Perceived environmental determinism

The analysis with regards to external factors shaping the degree of environmental determinism in the period under investigation produced three aggregate dimensions of determinism (Appendix 2, 1A):

1. Factors directly related to the COVID-19 virus and its spread (in 251 text segments) with 2 s-order themes: infection levels and consecutive waves.
2. Factors increasing uncertainty and determinism (1,307 segments), often labelled as 'headwinds' by some C-suite executives, with 5 s-order themes: imposition of restrictions, changing business/leisure demand, disrupted supply chains, disrupted construction activity and liquidity drag.
3. Factors decreasing uncertainty and determinism (976 segments), labelled as 'tailwinds' in many earnings calls, with 5 s-order themes: protection and treatment advances, easing of restrictions, government support schemes, return of consumer confidence and industry re-structure.

4.1.2. Choice of crisis response strategies

The analysis initially looked at a pattern of proactive from the past – reactive to the present – proactive for the future response strategies as supported by the generic crisis management literature. It soon emerged, however, that there was a need for a different and more elaborate classification of crisis response strategies (Appendix 2, 1B). This shift from the binary reactive vs proactive classification of strategies has also been implemented in the field of psychology and the Coping Theory in stress and crisis management which offers a wider range of 'coping strategies' (Schwarzer & Luszczynska, 2008; Schwarzer and Schwarzer, 1996) beyond proactive and reactive. In this study, the first type was *reactive* crisis response strategies, referring to efforts to deal with the ongoing unknown risk, and was classified in 6 s-order themes: maintaining business revenues, cutting operational costs, managing capacity, securing liquidity, supporting stakeholders and ensuring health and safety (47 first-order themes in 2,316 segments). As the first wave of the pandemic started subsiding, still constrained by the crisis, organisations adopted response strategies characterised as *adaptive* because they aimed to prepare the organisations for an imminent second wave and focused on living with the pandemic. These strategies were classified in 3 s-order themes: re-engineering of operations; restructuring resources for efficiency and re-shaping stakeholder relations (15 first-order themes in 280 segments). Another set of crisis response strategies aimed for *protection* of the organisations by building up general resilience resources that would result in operational process flexibility and less strain from a crisis in the immediate term and the future. These strategies were classified in 4 s-order themes: enhancing epidemic data-driven decision making; adapting operations to new customer needs; re-imagining business practices; negotiating innovative business models (23 first order themes in 626 segments). A final set of strategies was geared towards building up longer-term general resources that would facilitate movement toward the organisations' new strategic visions. *Proactive* in nature, these strategies were focused on strengthening the organisations' resilience to future crises and its ability to grow even under adverse situations. This gave rise to 4 s-order themes: strategic business transformation; securing financial resilience; cost structure re-engineering; and new stakeholder agreements (18 first order themes, 788 segments).

4.1.3. Environmental determinism and strategic choice by Period

Fig. 2 depicts the results for each of the five periods. In the five

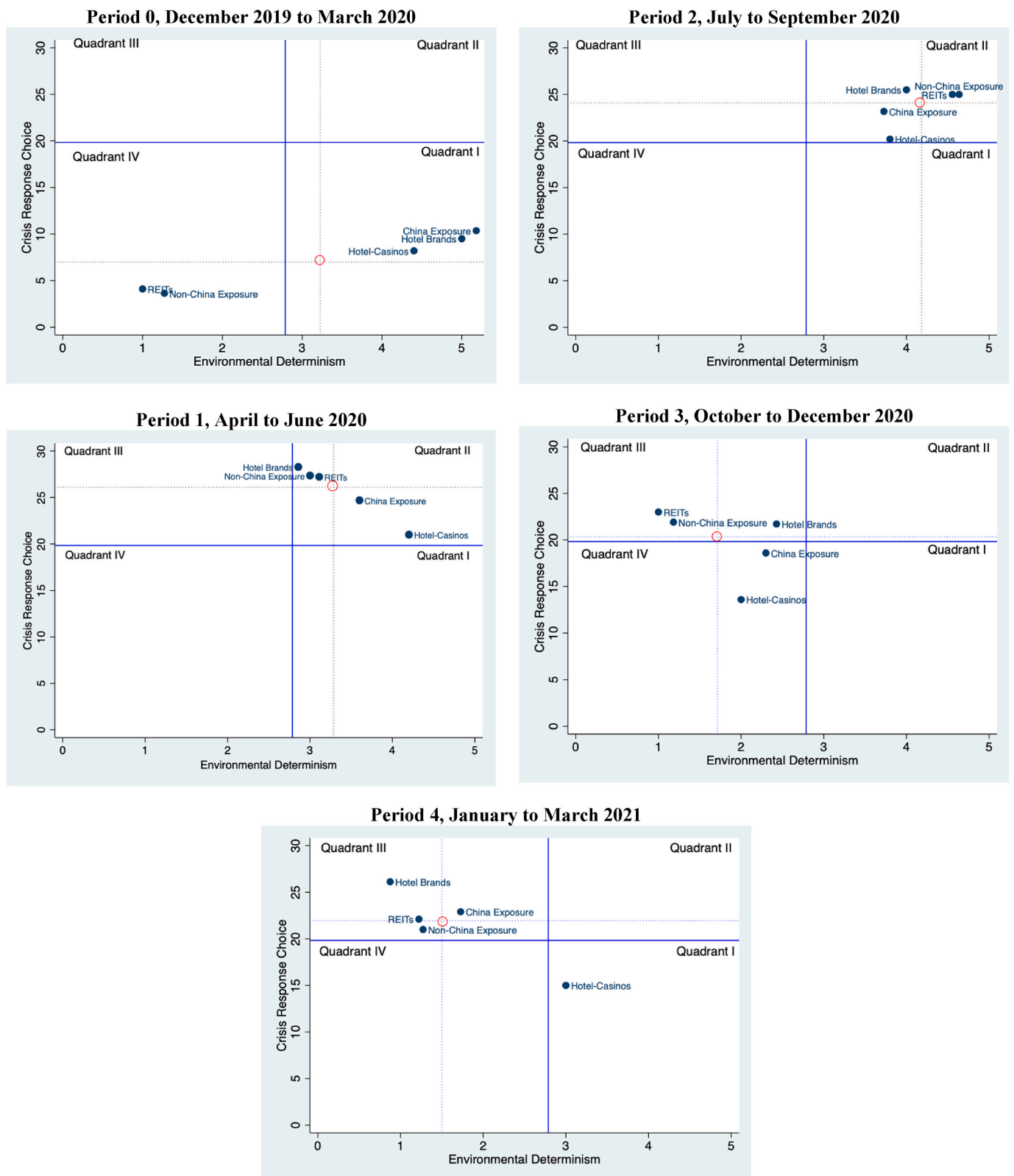


Fig. 2. Results by period.

matrices, the X-axis shows the number of perceived factors of environmental determinism and the Y-Axis the number of strategic choices (crisis response strategies) adopted by the hotel groups in the sample. The blue lines are the thresholds that define the quadrants in the matrix and are the sample averages of factors of environmental determinism

and the number of crisis response strategies for all the periods considered in the analysis. The dotted lines indicate the sample averages in each Period and the red dots represent the average location in the matrix of all hotel groups in the sample. The hotel groups are depicted by type (Brands, Casinos, REITs) and by their exposure to China, as this

appeared to be a significant factor affecting their initial reactions.

Simple linear regression analysis showed that both perceived environmental determinism and the number of crisis response strategies adopted by the hotel groups in the samples changed during the first year of the pandemic and that the movement across the Adaptive Matrix's quadrants, in the different periods investigated, was as expected (Table 2).

Looking at Fig. 2, in conjunction with Table 2, the number of perceived environmental determinism factors can be seen to change across the different periods (horizontal axis) as expected (low-high-high-low) with statistical significance. Hotel groups moved to the right of the threshold as the perceived environmental determinism increased in the first months of the crisis and then went back to the left side of the threshold when the perceived environmental determinism gradually decreased. More specifically, whilst it increased in Periods 0, 1 and 2, the perceived environmental determinism was not significantly different between these periods. Hotel groups perceived statistically more environmental determinism in Periods 1 and 2 than in Periods 3 and 4, with those two periods not being statistically different from each other.

The number of crisis response strategies adopted across the different periods (vertical axis) also changed, as expected, with statistical significance. Hotel groups in Period 0 adopted a significantly low number of strategies (below the threshold). The number of strategies then moved above the threshold in Period 1, adopting a statistically higher number of responses than was observed in Periods 2, 3 and 4, whereas the strategies in these last three periods did not show significant statistical difference between any of these three periods.

Tables 3 and 4 present a simple linear regression model of perceived environmental determinism factors and choice of crisis response by type of hotel group and by exposure to China respectively.

4.2. Qualitative findings

4.2.1. Period 0 (December 2019 to March 2020): denial and confusion at the edge of chaos

In Period 0, before the pandemic was declared, the C-Suites' levels of understanding of COVID-19 were varied. The hotel brands and casino groups with exposure in China, fully experienced the effects of the virus and directly combated it; their understanding of the risk was more comprehensive and the language they used in the earnings calls was much more crisis-response-oriented. These C-Suites focused on the measures taken by their government and the industry, and expressed their "sincere gratitude to the Macau SAR government for their proactive and decisive response to contain the spread" (Melco, 20 February 2020) and the "terrific job in front of battling against the COVID-19" (Huazhu, 27 March

Table 2
Simple linear regression model of environmental determinism and strategic choice (estimates OLS).

	Adaptive Matrix: Horizontal Axis		Adaptive Matrix: Vertical Axis	
	N° of Environmental Determinism factors		N° of Strategic Choices	
Period 0	-0.058 [0.793]	1.512 [0.793]	-19.095 [2.400]***	-13.333 [2.400]***
Period 1	[omitted]	1.571 [0.802]*	[omitted]	5.761 [2.428] **
Period 2	0.896 [0.793]	2.467 [0.793]***	-2.004 [2.400]	3.757 [2.400]
Period 3	-1.571 [0.802]*	[omitted]	-5.761 [2.428]**	[omitted]
Period 4	-1.785 [0.793]**	-0.214 [0.793]	-4.140 [2.400]*	1.621 [2.400]
N° of observations	108	108	108	108
R ²	0.1394	0.1394	0.4370	0.4370

Confidence level (two-tail test): 99% (***), 95% (**), 90% (*), 85% (ˆ).

2020). The international brands with properties in China showed caution with the "coronavirus situation" as, from mid-January, they started to experience occupancy declines that gradually spread from Wuhan to other markets in the Asia Pacific region. Hotels with Chinese exposure were predicting it would last "around three to six months with an additional three to six month recovery period" (Hilton, 11 February 2020). They relied on their limited knowledge of prior epidemics (SARS, Ebola, H1N1, Zika) and on the knowledge generated by their properties in the frontline in China (IHG, 18 February 2020; Marriott 27 February 2020; Hilton, 11 February 2020). These hotels had already moved into Quadrant I of the Adaptive Matrix as they had already encountered the health crisis situation, but they then started to realise that they were facing an 'unknowable unknown'. They took measures informed by the crisis response in China "to minimize the negative financial impact on both our owners and on our financial results" (Hyatt, 20 February 2020). Their reactions can be described as "carefully monitoring the situation" (Hilton, 11 February 2020; Hyatt, 20 February 2020), although the common belief among the C-suites of these hotel groups was "we don't think it's going to be significant in these markets outside of Asia-Pacific" (Hyatt, 20 February 2020). This was a period of high environmental determinism (since the hotel groups and casinos did not have control of the external environment) and of very low strategic choice (since COVID-19 was still a localised crisis in a region where the state dictated any courses of action). The REITs, being more US-centric, talked about the crisis as something that was affecting only China and their Chinese inbound customer base with minimal impact on their business (Sunstone, 19 February 2020; Host, 20 February 2020). The REITs referred to the situation as something "hard to ignore as it continues to dominate the headlines" but that would "not change the playbook for now" (Park, 27 February 2020). Although the REITs referred to the risk mostly as a "health crisis", their perceptions varied from "unknowable", "unpredictable" and "difficult to forecast" (Pebblebrook, 21 February 2020) to just a "hype" and "for want of a better word, paranoia" (Ryman, 25 February 2020). REITs in this Period remained 'blissfully ignorant' or in denial, positioned in Quadrant IV (low environmental determinism - low crisis response choice) – "our international business is really only about 5% of our total business ... [business] coming from China" (Ryman, 25 February 2020).

Our analysis showed that, in this Period 0, hotel brands and casinos perceived statistically significantly higher environmental determinism than did the REITs (Table 3). Also, the brands and casinos with exposure to China had a statistically significantly higher perception of environmental determinism than did the REITs; the former were already facing challenging, and even chaotic, circumstances in Quadrant I with a limited range of response strategies (Table 4). Hotel brands adopted a statistically higher number of crisis response strategies than did the REITs, while casinos did not apply a statistically significantly different number of strategies than did the REITs (Table 3). Exposure to the Chinese market statistically increased both the perceived negative environmental determinism factors and the number of strategies implemented in Period 0 (Table 4), while it had no significant effect on the perceived environment during the remaining periods. The same occurred with the number of response strategies adopted, with the organisations exposed to Chinese markets developing statistically more response strategies than the ones that were not exposed.

4.2.2. Periods 1 & 2 (April to September 2020): The complexities of a global pandemic

In Period 1, the hotel organisations' C-suites' views were aligned with one another. They expressed a sense of being overwhelmed with the uncertainty of the "unprecedented", "dramatic", "extraordinary" and "challenging times" and they made comparisons with previous crises (SARS and other health crises, the 2007–2009 financial crisis and various terrorism events). The C-suites used weather metaphors to illustrate their resolve (to "navigate this morass" and "weather this unprecedented storm") and referred to continuous changes in the

Table 3
Simple linear regression model of perceived environmental determinism factors and crisis response choices by type of hotel group (estimates OLS).

	Period 0	Period 1	Period 2	Period 3	Period 4	
Factors of Environmental determinism						
Brands	4 [1.227]***	-0.253 [1.495]	-0.555 [1.323]	1.428 [1.209]	-0.347 [0.894]	[omitted]
Casinos	3.4 [1.408]**	1.088 [1.655]	-0.755 [1.519]	1 [1.338]	1.777 [1.027]*	2.125 [1.049]*
REITs	[omitted]	[omitted]	[omitted]	[omitted]	[omitted]	0.3472 [0.894]
Earnings Calls Analysed ^a	22	21	22	21	22	22
R ²	0.3875	0.0349	0.0157	0.0763	0.1896	0.1896
Crisis response Choices						
Brands	5.388 [2.526]**	[omitted]	0.5 [4.852]	-1.285 [2.886]	[omitted]	4.013 [3.625]
Casinos	4.088 [2.900]	-7.285 [4.838]-	-4.8 [5.570]	-9.4 [3.195]***	-8.114 [3.354]*	-7.111 [4.161]-
REITs	[omitted]	-1.063 [4.164]	[omitted]	[omitted]	1.285 [2.886]	[omitted]
Earnings Calls Analysed ^a	22	21	22	21	22	22
R ²	0.2048	0.1245	0.0497	0.3398	0.3398	0.2649

^a 2 Accor earnings calls missing.
Confidence level (two-tail test): 99% (***), 95% (**), 90% (*), 85% (-).

Table 4
Simple linear regression model of perceived environmental determinism factors and crisis response choices by exposure to China (estimates OLS).

	Period 0	Period 1	Period 2	Period 3	Period 4
Factors of Environmental determinism					
Exposure	3.909 [1.017]***	0.6 [1.277]	-0.909 [1.123]	1.118 [1.030]	0.454 [0.844]
Earnings Calls Analysed ^a	22	21	22	21	22
R ²	0.4248	0.0115	0.0317	0.0583	0.0143
Crisis response Choices					
Exposure	6.727 [1.899]***	-2.663 [3.705]	-1.818 [4.237]	-3.309 [2.900]	1.909 [3.591]
Earnings Calls Analysed ^a	22	21	22	21	22
R ²	0.3853	0.0265	0.0091	0.0641	0.0139

^a 2 Accor earnings calls missing.
Confidence level (two-tail test): 99% (***), 95% (**), 90% (*), 85% (-).

environment and in the risk (“*evolving*”, “*dynamic*”, “*fluid situation*”, “*current dynamics*”). Notably, at the point in time when the REITs were stating that “*we all find ourselves in uncharted territory with an almost complete lack of clarity about the future*” (Pebblebrook, 9 May 2020), the Chinese hotel groups, having gone through the learning curve earlier than the rest, were starting to talk about control (“*the outbreak is coming under control in China*”, GreenTree, 14 April 2020) and recovery (“*now we’re in the initial recovery stage*”, Huazhu, 27 March 2020), albeit slow (“*to encourage investors not to expect a V-shape recovery in Macau*”, Melco, 14 May 2020). The crisis became an ‘unknown unknown’ “*informed by the trends we are seeing now, our experience of previous downturns and the insights we are getting from China*” (IHG, 7 May 2020), thus, still with a high perceived environmental determinism. In the face of travel restrictions and lockdowns, followed by re-openings and relaxation of measures, however, Chinese hotel groups moved to Quadrant II increasing their crisis response strategies (higher choice) with the spirit of “*Now is the time to experiment and try things. The risk of failing is more than outweighed by the benefits of what we could learn*” (MGM, 30 July 2020). They attempted everything they could to navigate the crisis with the limited information and knowledge that they had. In Period 2, and as summer in the northern hemisphere started, the number of COVID cases subsided and all the C-suites appeared to know more about the risk. They were more confident in dealing with the crisis and their communication focused on the effectiveness of their response strategies, their preparations for new waves and the changes they were making to withstand similar situations in the future. Words like “*recovery*”, “*pivot*”, “*rebound*” and expressions such as “*back to normal*”, “*new normal*”, “*win-win*”, “*post-COVID*” and “*post-pandemic*” were used regularly in this Period. The pandemic was seen as a manageable risk

and as “*an accelerator ... for people to understand the necessity to readjust*” (Accor, 8 August 2020).

Tables 3 and 4 above show that, in both periods, all the organisations, regardless of their type and exposure to China, behaved similarly with regards to perceived environmental determinism and the number of response strategies they adopted with no significant statistical differences in their behaviour.

4.2.3. Period 3 (October to December 2020): Better but still complicated

In Period 3, the relaxation of measures and the announcement of multiple vaccines had brought a sense of “cautious” optimism among the hotel groups (Hyatt, 5 November 2020) for the gradual recovery of business and key metrics such as ADR and RevPAR (Huazhu, 6 December 2020). They continued their efforts to adapt to the COVID world and felt more confident about managing the crisis. Although the virus had become less of an ‘unknown’ with only the new variants and their behaviour being ‘known unknown’, but the uncertainty of business, the varying regulatory frameworks across the globe, the possible vaccine production and distribution challenges, and the financial and other consequences of the lockdown kept the crisis situation quite complicated. Regardless, response systems were in place and the talk in the earnings calls was mostly about recovery and dealing with the ‘pent-up demand’, reflecting lower levels of environmental determinism. The hotel brands and REITs continued their crisis response strategies at almost the same level as in the previous periods (thus, moving to Quadrant III), selecting those strategies that had proven successful in Periods 1 and 2 and were, therefore, now considered more mainstream ‘good practice’, rather than ‘under duress’ responses. The crisis response strategies here were well-informed and the choice was ‘by design’ following experience and analysis. Some REITs talked about “*the opportunity to rethink and re-engineer our businesses*” (Ryman, 3 November 2020) whereas others took advantage of the COVID-19 circumstances to undertake major restructures of their portfolios. SVC, for example, announced “*the decision to terminate agreements [with Marriott and IHG for 125 hotels] and to transition management and branding of these hotels to Sonesta [of which 34% is owned by SVC]*” (SVC, 9 November 2020). The casino groups moved to Quadrant IV, apparently confident about the course the pandemic had taken and having experienced significant business recovery in both Macao and Las Vegas. They talked about “*meaningful recovery across the different segments*” and “*50% recovery of the premium mass segment*”. They were encouraged by the “*strong renminbi*” and the fact that “*the Chinese consumer is not traveling to foreign countries*” (LVS, 21 October 2020). US casinos had similar optimism with efforts focused on proactive strategies to secure future growth. For example, Caesars started monetising the Caesars Rewards database through brand license agreements, proprietary i-Gaming and sports betting platforms (Caesars, 5 November 2020) and MGM was “*aggressively working to introduce new customers to BetMGM*” (MGM, 29 October 2020). The confidence and optimism of casino C-suites was also

reflected in their failure to mention the second COVID-19 wave in any of the earnings calls during this Period. Hotel brands referred to a second wave and the difficulty of forecasting its impact – possibly due to their exposure, or non-exposure, in Europe. Organisations in this Period felt more in control: *“unless you’re asleep, you’d see the caseloads are increasing daily and to new records in a large number of states in the United States and in Europe. So, we’re just anticipating that, that progression, which is upon us”* (Hyatt, 5 November 2020).

In this period, our analysis showed that there were no statistically significant differences between types of hotel groups in their perceptions of environmental determinism (Table 3). Table 4 shows that the REITs and hotel brands behaved statistically similarly to one another and adopted more crisis response strategies than: i) the casinos; and ii) hotel groups with exposure in China (Table 4).

4.2.4. Period 4 (January to March 2021): Coexisting with COVID-19

Period 4 was characterised by the impact of the second wave and the lockdowns imposed in several countries from November 2020 onwards. The hotel brands and REITs remained in Quadrant III because they were still dealing with a ‘known unknown’ (variant Delta) but they were optimistic for a recovery: *“the combination of the rapid decline in cases over the last six weeks and the increasing pace of vaccinations will lead to an easing of governmental restrictions and the untethering of pent-up travel demand”* (DiamondRock, 28 February 2021). During this Period, the crisis was complicated to manage, with difficulties to overcome, but not as complex as it had been in the earlier periods. This optimism indicated low environmental determinism and, consequently, a reasonable choice of response strategies. However, for the casinos, environmental determinism became much stronger in this Period pushing them from Quadrant IV of the matrix back to Quadrant I. A major contributing factor was the travel restrictions in Southeast Asia. More specifically, in *“Singapore, the government is eager to open the doors, but it necessitates airlift, which means counterparty trading with other governments and other airlines. So, we don’t see it coming back in the short-term”* (LVS, 27 January 2021). A second contributing factor was the delay in the announcement of the operator licences renewal process for casinos in Macao, *“We only have about 17 months left before the concession expires. And we only know that the government is adopting a process, which includes public consultation on the performance of the concession”* (LVS, 27 January 2021). A third and equally concerning factor was a series of *“property closures and incremental COVID-19 restrictions”* (Caesars, 25 February 2021) in the US and internationally. A fourth threat that emerged was that, *“Macao cannot afford a single case because it was a public announcement by the government that if there is even one case, Macao would be locked down again”* (LVS, 27 January 2021).

Table 3 shows that casinos perceived statistically more environmental determinism than did the hotel brands and REITs, thus, explaining their move back to Quadrant I. They continued to implement a lower (and statistically significant) number of response strategies than both the hotel brands and the REITs. Otherwise, in Period 4, the hotel brands and the REITs had no statistically significant difference in perceived environmental determinism.

4.3. Crisis strategy mix

4.3.1. Crisis response strategies by Period

As discussed earlier, the crisis response strategies in this study were classified as reactive, adaptive, protective and proactive. Fig. 3 presents the mix of response strategies by Period and shows that the reactive strategies were dominant throughout the first year of the pandemic. However, the more that knowledge and understanding of the coronavirus increased (and environmental determinism decreased) the more the responses shifted to protective and proactive strategies. Adaptive strategies were used predominantly in Period 0, when the risk was still relatively unknown, but adaptation was also demonstrated to a reasonable extent in the periods that followed. This is also confirmed by

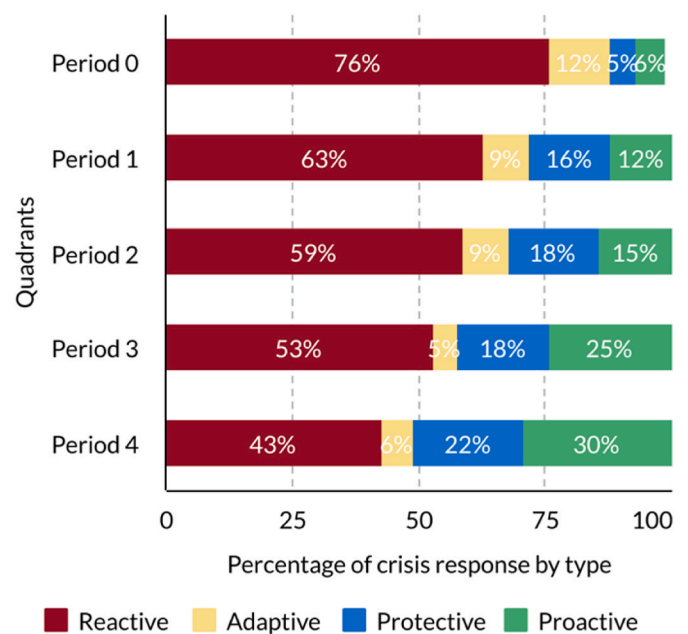


Fig. 3. Crisis strategy mix by period.

the density charts in Appendix 3.

Linear regression analysis with Period fix effects between periods was also used to explore, statistically, the types of strategies that were used most in each period in comparison to the others (Table 5) and a paired t-test identified the differences in use of strategies within each period (Appendix 4).

4.3.2. Reactive strategies: immediate reactions to the event

Reactive strategies, such as operational cost control measures, capacity management or securing a strong liquidity position were used throughout. Comparisons between periods (Table 5) showed that, under the chaotic situation in Period 0, the organisations adopted statistically more reactive responses than they did in any of the other periods. Reactive responses were used statistically less in Periods 3 and 4 compared to Period 1, but were not different to Period 2.

Adaptive Strategies: short-term, quasi-informed actions.

Short-term, adaptive strategies, such as increasing customer confidence in health and safety, streamlining resources to achieve efficiency and maintaining stakeholder relations, were used throughout but were used statistically more in Periods 0, 1 and 2, when the risk was less known, and statistically less in Periods 3 and 4.

Protective Strategies: medium and longer-term, informed, crisis-focused actions.

Longer-term, protective strategies to safeguard the organisations from similar crises in the future by, for example, moving them towards healthier and more efficient operational models and by reviewing their provision based on customer changing needs (e.g., hybrid conferences) and increasing sanitation standards were deployed statistically more in Period 4 than in the earliest stages of the pandemic (Periods 0 and 1), but without statistically significant difference with Periods 2 and 3.

Proactive Strategies: longer-term, informed actions for broader resilience, recovery and growth.

Finally, proactive response strategies to safeguard longer-term growth, such as strategic business transformations, securing stronger financial resilience and cost structure re-engineering, were statistically more dominant in Period 4 than in the rest of the periods. The deployment of proactive responses grew over time, being statistically more adopted in Period 4 than in Period 3, more in Period 3 than in Period 2, equally used in Periods 2 and 1, but more deployed in Period 1 than in Period 0.

Table 5
Multiple linear regression model with Period fix effects between periods (estimates OLS).

	Reactive Response	Adaptive Response	Protective Response	Proactive Response
Period 0	0.137 [0.038]***	0.069 [0.022]***	-0.164 [0.030]***	-0.235 [0.024]***
Period 1	[omitted]	0.044 [0.022]*	-0.059 [0.030]*	-0.178 [0.024]***
Period 2	-0.037 [0.037]	0.037 [0.022]*	-0.042 [0.030]	-0.150 [0.023]***
Period 3	-0.101 [0.038]***	[omitted]	-0.039 [0.030]	-0.051 [0.024]**
Period 4	-0.201 [0.037]***	0.008 [0.022]	[omitted]	[omitted]
Exposure	-0.074 [0.043]**	0.037 [0.025]-	-0.009 [0.034]	0.045 [0.027]*
Brands	0.013 [0.032]	-0.043 [0.019]**	0.042 [0.026]-	-0.012 [0.020]
Casinos	[omitted]	[omitted]	[omitted]	[omitted]
REITS	-0.008 [0.046]	-0.013 [0.027]	-0.005 [0.037]	0.027 [0.029]
N° observations	107	107	107	107
R ²	0.4857	0.1750	0.2644	0.5648

Confidence level (two-tail test): 99% (***), 95% (**), 90% (*), 85% (-).

Exposure to the Chinese market led to statistically less reactive and more adaptive and proactive strategies (with low statistical significance), while there was no statistically significant effect of Chinese exposure on the deployment of protective responses.

The crisis mix varied slightly upon the type of organisation. The hotel brands employed statistically less adaptive responses than the casino groups but the formers' responses were not statistically different from those of the REITs. The brands used more protective responses than the casinos.

Further analysis with paired t-tests (Appendix 4) confirmed that while reactive responses dominated across all Periods, the strategy mix composition evolved over time, with more non-reactive responses being used as the organisations' levels of understanding of the crisis improved.

4.3.3. Crisis response strategies by quadrant

This study sought to look at the ways in which crisis response strategies (reactive, adaptive, protective and proactive) were used across the proposed matrix, i.e., under different levels of environmental determinism and crisis strategy choice. Fig. 4 depicts the crisis strategy mix per quadrant while Appendix 5 provides a visual representation of the distribution of strategies.

As before, linear regression analysis with Period fix effects between quadrants was also used to explore, statistically, the types of responses most used under different levels of environmental determinism and

crisis strategy choice (Table 6), and a paired t-test identified the differences in use of strategies within each quadrant (Appendix 6).

Overall, the study revealed that all four types of crisis strategies were present in all quadrants at any time. Reactive strategies were deployed in all quadrants more than any other strategy type. Yet, the statistical comparison between quadrants showed that although they were deployed more under chaotic crisis conditions (Quadrant I) and under more obvious crisis conditions (Quadrant IV) they were statistically less deployed in quadrants II and III. This showed that when there was limited strategic choice, the crisis response strategy was predominantly reactive. In complex crisis conditions (Quadrant II), adaptive strategies were statistically more used than in the other quadrants and with high significance in quadrants III and IV. In Quadrant III, organisations facing a still complex, but under more control, (complicated) situation deployed significantly more informed, longer-term, protective and proactive strategies compared to quadrants I and IV, but with no statistically significant difference from Quadrant II.

5. Discussion

The extended timeframe of the COVID-19 creeping crisis allowed a 'slow motion' analysis of organisational responses to a crisis that no one seemed to be prepared for, in spite of their planning. Pandemic plans did not stand up effectively to the crisis scenario that was unfolding and were more what Clarke (1999) termed 'fantasy documents' rather than crisis management plans. This study confirms that a lack of knowledge and understanding of the root causes of a crisis decreases its controllability and, consequently, increases environmental determinism. The 2 × 2 matrix we used as an analytical framework shows that crisis response choices depend on perceived environmental determinism and on knowledge and understanding of the crisis's root causes.

5.1. Responding to unknowable unknowns (Quadrant I)

Although all crises are characterised by ambiguity, uncertainty and a lack of information (Pearson and Clair, 1998), this study confirms that, when confronted with a completely unknown crisis that organisations' management teams could never have imagined in advance (an unknowable unknown), some organisations are, at first, unable to recognise it as such (Boin, Ekengren, & Rhinard, 2020) and continue to operate in a non-crisis mode. Creeping crises present two challenges in their incubation stage: signal recognition and correct signal interpretation (Paraskevas and Altinay, 2013). There is wide consensus among crisis scholars that the timely detection of crises often presents challenges because of the inconceivability of certain unknown events but, most importantly, because many organisations are not designed to look for crises (Boin, Ekengren, & Rhinard, 2020). Even when they look out for crises, they do so for anticipated threats (in this case, a regionally confined epidemic) whereas undefined threats pass through organisational detection and crisis sense-making filters. Organisations with the

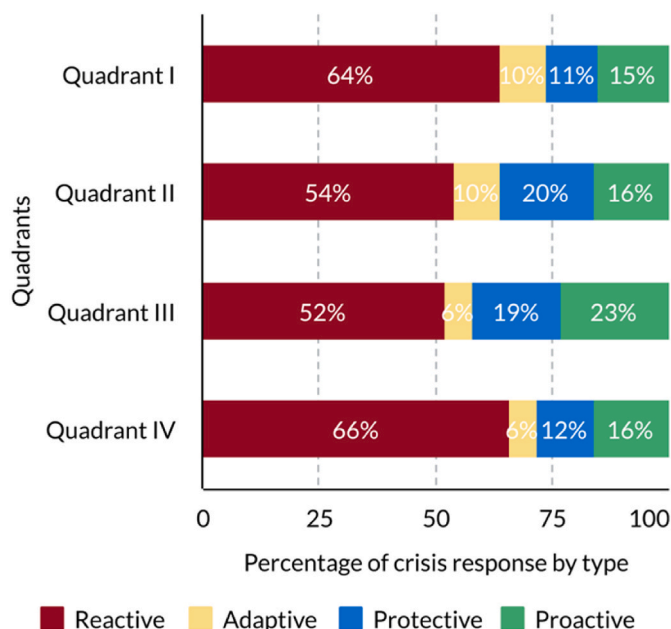


Fig. 4. Crisis strategy mix by quadrant.

Table 6
Multiple linear regression model with Quadrant fix effects between quadrants (estimates OLS).

	Reactive Strategies	Adaptive Strategies	Protective Strategies	Proactive Strategies
Quadrant I	[omitted]	−0.016 [0.022]	−0.091 [0.032]***	−0.095 [0.034]***
Quadrant II	−0.151 [0.044]***	[omitted]	0.011 [0.028]	−0.064 [0.030]**
Quadrant III	−0.173 [0.047]***	−0.031 [0.020]ˆ	[omitted]	[omitted]
Quadrant IV	−0.019 [0.046]	−0.039 [0.020]*	−0.071 [0.030]**	−0.074 [0.032]**
Exposure	−0.101 [0.053]*	0.040 [0.026]ˆ	0.008 [0.037]	0.052 [0.039]
Brands	0.083 [0.043]*	−0.043 [0.021]**	[omitted]	[omitted]
Casinos	[omitted]	[omitted]	0.000 [0.030]	0.040 [0.032]
REITs	0.028 [0.058]	−0.010 [0.029]	−0.026 [0.040]	0.048 [0.042]
N° observations	107	107	107	107
R ²	0.2106	0.1116	0.1601	0.0957

Confidence level (two-tail test): 99% (***), 95% (**), 90% (*), 85% (ˆ).

appropriate crisis-sensing capabilities are able to make correct inferences about the nature, scope and escalation potential of the crisis they are facing, and those without these fail to do so (as per certain of the REITs and casino groups studied here). In the case of unknown crises, the mere ability to detect abnormal patterns would suffice to trigger a crisis sense-making process, even if the cues from the trigger event were novel, fast-paced, overwhelming, and unpredictable (Christianson and Barton, 2021). Those organisations that recognise the crisis situation, soon realise that their crisis response plans are inadequate and navigate an environment that can be described as chaotic without any control of the situation (high perceived environmental determinism). Early exposure to the threat (e.g., exposure in China during the COVID-19 pandemic) gives an advantage over other organisations on the ability to understand and frame the crisis, thus facilitating advanced crisis response choice. Their initial response was to deploy a limited range of quick-fix, reactive crisis strategies aimed primarily at survival, damage limitation and business continuity, in the hope to re-establish a degree of order and stability in the short term. Although such actions were in line with the widely accepted ‘reactive mindset’ to crisis response (Ritchie, 2008), our analysis shows that reactive response does not preclude organisations from also deploying strategies that are more adaptive in nature and, at a smaller scale, from deploying longer-term, protective or proactive actions, based on previous similar experiences or emerging knowledge of the crisis they face.

5.2. Responding to unknown unknowns (Quadrant II)

Having secured short-term survival, organisations in the face of continuing low control of their environment (high perceived environmental determinism) and high unpredictability and flux, deployed a larger repertoire of strategies to deal with the crisis. The situation was complex, with a multitude of variables shaping the crisis and with no right answers and solutions for most of them. The novel nature of the creeping crisis necessitated improvisation and trial-and-error experimentation to determine the most effective crisis strategies and methods of deployment (Moynihan, 2008) as well as a process of crisis knowledge generation (turn the unknowns into knowns) and codification (Paraskevas et al., 2013). The responses were quasi-informed and based on limited knowledge and information about the root causes of the crisis, and decisions were heuristic-guided (Schmidt and Berrell, 2007), usually constrained by governmental and other regulatory restrictions. The organisations monitored the impact (or lack thereof) of their crisis strategies and adapted them as necessary. It is therefore important for organisations in this situation to have strong information-monitoring capabilities, alongside rapid feedback networks and adequate adaptive capacity that will allow them to take a ‘probe and learn’ approach to crisis response allowing them to treat responses as experiments (Ansell & Boin, 2019). Boin, Ekengren, & Rhinard (2021) admit that this is an extreme form of crisis management where a ‘null hypothesis’ is formulated, intended and unintended results are carefully monitored, and the response is modified to optimise the outcome. Adaptive strategies

continued to be implemented in this quadrant to wrestle down the ongoing uncertainty; however, the portfolio of crisis strategies now included longer-term protective actions to safeguard the organisation from the crisis and proactively establish foundations for future resilience and growth.

5.3. Responding to known unknowns (Quadrant III)

As knowledge about the root causes of the crisis was generated, the crisis became better framed and more controllable, the perceived environmental determinism decreased and organisations selected the crisis strategies that had proven most effective in the earlier periods. The crisis situation was still shaped by a multitude of variables, but it was just complicated and not as complex as before since now there were ‘right’ answers available for most of the environmental determinism factors. In quadrant III, decisions were made rationally and by choice following a criteria-informed, problem-solving process (Varma, 2019) as opposed to the experimentation of Quadrant II and the improvisation of Quadrant I. Any new response strategies were designed in anticipation of what was expected to come (‘known unknowns’, e.g., new waves and variants). Consequently, the chosen crisis strategies were still aiming for business continuity but were less adaptive in nature and more forward looking to strengthen the organisation (protective) and to plan for its post-crisis growth (proactive). Towards that end, organisations decided to look for new ways to navigate the post-pandemic landscape by redefining their operating processes, introducing new or reconfigured products and services, and redesigning their internal structures. The new knowledge about the pandemic created opportunity contexts that led to rapid changes in what was considered standard hospitality provision (e.g., emphasis on hygiene rather than cleanliness, multi-venue social-distanced conventions and mega-events, hybrid conferences and meetings) and challenged the role of fast vs. slow players in an industry-level transformation caused by the aggregation of multiple individual organisations’ changes and innovations. The winners in this race were the organisations that possessed the agility and the ability for a rapid change of their long-established approaches to business.

5.4. Responding to known knowns (Quadrant IV)

When dealing with a known crisis, the organisations have already institutionalised the knowledge of the crisis (Paraskevas et al., 2013) and developed crisis management plans based on ‘formalised’ best practice (as opposed to good practice in Quadrant III). Crisis strategies employed in this Quadrant were still predominantly reactive but, having a clear understanding of the crisis, the strategies followed the protocols and procedures prescribed in a formal crisis management plan. Adaptive strategies continued here but the crisis strategy mix included a set of prescribed protective and proactive strategies aimed at the recovery and resilience of the organisation in the future that was notably smaller than in Quadrant III. The focus of those strategies was more future-looking to enable organisations to cope with changes in the external environment

and crises as they take shape, and thereby reduce the need for a much larger and more difficult adaptations and changes later on, what [Agarwal and Helfat \(2009\)](#) call incremental strategic renewal. This strategic renewal requires organisations to be able to refresh or replace organisational attributes “that have the potential to substantially affect its long-term prospects” (p.282) such as strategic portfolio changes (replacing assets to alter the resort:urban properties’ ratio), refreshing debt position by extending maturities, replacing existing decision support systems with advanced AI systems, etc. The study also showed that it is possible for organisations dealing with a creeping ‘known known’ to get a false sense of closure, only to be pushed back to Quadrant I due to new deterministic forces (e.g., new regulatory framework, like in Macau). When this occurred, however, they were dealing with ‘knowable unknowns’ and, therefore, their crisis strategies were more geared towards the protective/proactive type rather than the reactive/survival type that characterises Quadrant I.

Organisational crisis responses, under different levels of environmental determinism and crisis knowledge, are summarised in [Fig. 5](#).

6. Conclusion

In response to the call for further development in conceptual and theoretical model building, testing and refinement through empirical studies ([Berbekova et al., 2021](#); [Ritchie & Jiang, 2019](#)), this study set out to explore, empirically, how tourism organisations addressed the creeping crisis of the COVID-19 pandemic. This was a crisis that the organisations could not detect as a crisis while it was in incubation and could not prevent with proactive risk management before it erupted. Moreover, when it escalated, the organisations’ crisis management plans were insufficient. Creeping crises are a type of crisis that have received little attention from crisis scholars ([Boin, Ekengren, & Rhinard, 2020](#)) to date. In recognition of this gap, we propose a creeping crisis response matrix for ‘unknown unknowns’ by integrating elements from [Hrebiniak and Joyce’s \(1985\)](#) Adaptive Matrix with Rumsfeld’s Matrix ([de Valk & Goldbach, 2021](#)) and [Snowden and Boone’s \(2007\)](#) Cynefin framework on crisis response-environment fit. This study has tested and confirmed the proposed matrix both qualitatively and quantitatively.

Being one of the few longitudinal studies on crisis management research in general ([Ritchie & Jiang, 2019](#); [Wut et al., 2021](#)), and on creeping crises in particular ([Maier et al., 2022](#)), the theoretical contributions of this study are threefold. The first is that it showed that when dealing with a creeping, unprecedented crisis, organisational crisis response is directly influenced by the perceived environmental determinism and the unpredictability of the unknown root cause of the crisis. The study statistically confirmed the basic [Hrebiniak and Joyce \(1985\)](#) principles on the dynamic relationship between environmental determinism and strategic choice in the context of creeping crisis management. The organisations in our sample responded to the crisis, moving across the matrix, by deploying variable crisis response mixes (in terms of numbers of strategies and type) that depended on the levels of knowledge the organisations garnered about the crisis.

The predominant crisis responses, throughout the creeping crisis lifecycle tended to be reactive. However, we showed that these reactive response strategies went through a ‘filtering’ process, starting with a small number of rapid survival responses when the crisis was not yet well-framed, moving then to multiple quasi -informed crisis strategies being tested, then to response by design (selecting good practice) once the crisis was better framed and, eventually, evolving to response by protocol once the crisis was fully framed and understood. The second theoretical contribution, therefore, of this study is that when dealing with unknown creeping crises, organisational responses follow a cycle of improvisation-experimentation-rationalisation-formalisation. The third theoretical contribution is that, contrary to the widely accepted conventional and almost linear ‘proactive pre-crisis/reactive during crisis’ response model ([Pforr & Hosie, 2008](#); [Ritchie, 2008](#)), the organisations in this study were proven to deploy a mix of response strategies at all stages of the crisis, even during the early ones. These strategies included a small, but consistent, set of adaptive, short-term responses and a larger mix of medium and longer-term, protective and proactive strategies, which varied depending on the levels of crisis knowledge and perceived environmental determinism.

From a practical perspective, in many respects, creeping crises magnify the challenges normally associated with managing crises ([Boin, McConnell, & ‘t Hart, 2021](#)) and cast into question both governments’

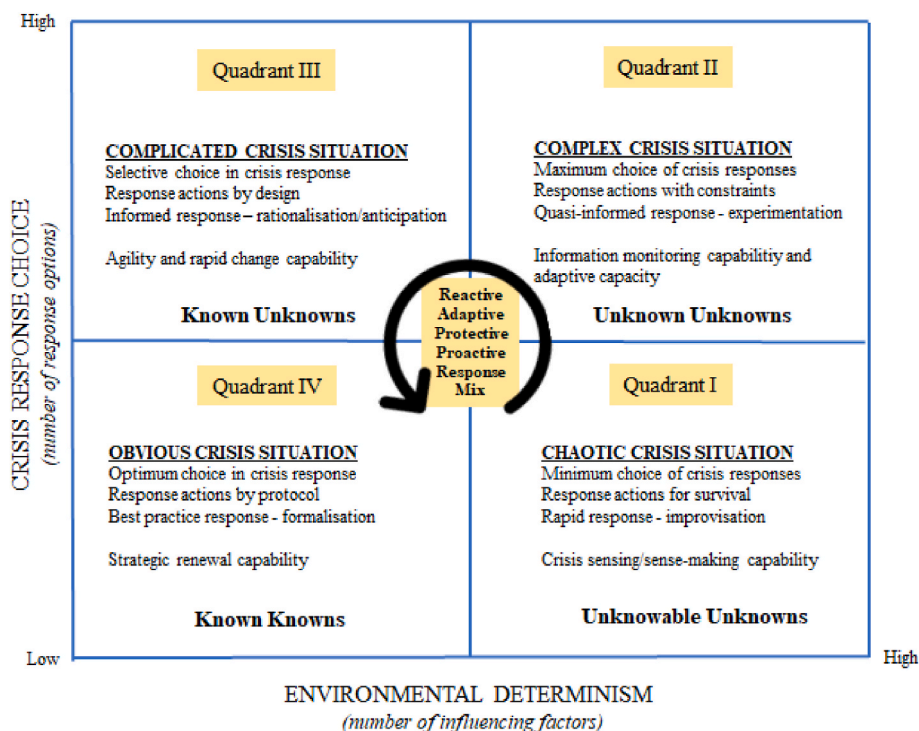


Fig. 5. Creeping crisis response matrix.

and organisations' ability to manage them. It is evident though that risk and crisis managers need a new thinking in the way they should deal with them. This is the first study that proposes a theoretically founded and empirically tested roadmap for organisations to navigate a creeping crisis at different levels of environmental determinism. They can prepare a small number of potential rapid survival strategies that can be implemented in any situation of high uncertainty and ambiguity when having to deal with an unknowable unknown – i.e., when entering Quadrant I in our proposed matrix. From that point on, organisations need to have, well in advance, the appropriate structures and capabilities (sensing, information monitoring, adaptive capacity, agility for change and strategic renewal) in place that will enable them to develop an appropriate crisis response and a suitable crisis strategy mix as they move across the other quadrants within the matrix and their crisis response shifts from improvisation to experimentation and from rationalisation to formalisation. We can safely assume that the same approach may be taken when faced with a sudden, unknown crisis although the movement through the quadrants would be swifter. Future research may consider introducing Teece et al. (1997) dynamic capabilities theory and Jiang et al. (2022) typology view in the creeping crisis response matrix.

From a research perspective, our findings raise a number of questions about the management of creeping crises. Why did some organisations' C-suites (e.g., the REITs) miss the crisis signals in the COVID-19 incubation period and how can this be rectified in the future? How can organisations improve their ability to 'sense' an emerging creeping crisis, and what tools are appropriate for that purpose? A more in-depth analysis of feedback loops between crisis evolution, attention and response might unveil the challenges and opportunities in the C-suite crisis sense-making processes. Then, when moving from experimentation to rationalisation, what would be the criteria that would deem a crisis response strategy as 'optimal' and 'best practice'? Would sub-optimal solutions suffice? Further to that, during low determinism stage, when the crisis started to be relatively well-framed, some C-suites (e.g., casino groups) developed a false sense of closure and disregarded the threat of further waves that were unfolding. McConnell & 't Hart (2019) posit that inaction in the face of clear crisis signals is not just a result of the crisis' inadvertence. Further research could explore the factors behind this behaviour and if there is something about the nature of creeping crises that causes this inaction. Finally, longitudinal studies of specific patterns of crisis response during the various tipping points of the crisis would shed some more light on the non-linear nature of creeping crisis development.

The study has some limitations. The first limitation is the selected sample of tourism organisations, which were all from the hotel sector and arguably extends to the tourism sub-sector that received the most attention in the crisis literature (Ritchie & Jiang, 2019). A similar study looking at airlines or cruise companies might have yielded similar behaviours in terms of response and crisis strategy types but a different crisis strategy mix, given that they did not face the same operational restrictions. Research with different samples might unveil different approaches to managing a creeping crisis. A second limitation is that the study is based entirely on information presented by the C-suites of the selected organisations during their quarterly earnings calls with investors, which, as published accounts, may be follow a corporate narrative, and include strategies with impression management tactics, as has happened with CEO letters (Im et al., 2021). A wider range of information sources might generate-different sets of responses and can be a direction for future research.

Author contributions

Prof Alexandros Paraskevas: Conceptualization, Formal analysis, Writing – original draft, Review &; Editing. **Dr Mireia Guix:** Conceptualization, Methodology, Formal analysis, Writing - Original Draft, Review &; Editing.

Impact statement

Crisis management is at the core of future business success, given the uncertainty of external threats that potentially affect an organisation's fate. While organisations have developed crisis management plans, those may not be fit for detecting and responding to a gradual development of potential threats over time and space, such as evolving health, environmental and socioeconomic crises. The study provides proof of the evolution of the mix of strategic crisis responses to perceived environmental determinism as the crisis unfolds. When there is a limited strategic choice, the response is predominantly reactive to the crisis. As environmental determinism decreases and knowledge of the risk increases, the share of adaptive, preventive, and proactive strategies increases. The study informs discussions on crisis response by proposing a creeping crisis matrix that can guide future crisis management plans in hospitality.

Appendix B. Supplementary data

Supplementary data related to this article can be found at <https://doi.org/10.1016/j.tourman.2023.104777>.

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