

Comparing crisis management practices in the hotel industry between initial and pandemic stages of COVID-19

Crisis
management
practices

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Abstract

Purpose – Given the increasing number of travel restrictions, the COVID-19 outbreak has dealt a crippling blow to the hotel industry, and the crisis management practices supporting the industry needs are changing as the pandemic continues. This study aims to compare how the hotel industry has responded to this crisis at the initial stage and the pandemic stage.

Design/methodology/approach – Data were collected from hotel managers in Macau in two occasions, namely, early February and early April 2020. Importance-usage-performance analysis was conducted to classify six categories of practices (pricing, marketing, maintenance, human resources, government assistance and epidemic prevention) into four executable crisis management strategies (priority, maintain, low priority and possible overkill) for each stage. Follow-up in-person interviews were conducted to validate the results of the study.

Findings – In the initial stage, priority strategies should be applied in all epidemic prevention, pricing and maintenance practices and in two governmental assistance and human resources practices. In the pandemic stage, all epidemic prevention practices remain at the priority quadrant, but two pricing practices are downgraded. Hotels tended to force labour into unpaid vacations (furlough) and postpone office and system maintenance. Governmental assistance should be at a low priority.

Originality/value – This study contributes to the knowledge of contingency planning for crisis management across crisis periods. It also demonstrates the processes of importance-usage-performance analysis for researchers to undertake further studies in tourism crisis management. Timely recommendations for governments and hotel industry stakeholders are provided to cope with this crisis.

Keywords Hotel industry, Importance-performance analysis, COVID-19, Tourism crisis management, Epidemic prevention

Paper type Research paper

1. Introduction

Research on the tourism crisis has become a hot topic after the outbreak of COVID-19 (Zhao and Xu, 2020). This unparalleled crisis has sent the tourism sector, especially the hotel industry, into an unprecedented recession. Indeed, 150 Hilton hotels in China were closed during the COVID-19 outbreak (HNN, 2020). Although some studies have considered them as tourism crises (Backer and Ritchie, 2017; Ritchie and Jiang, 2019), most previous studies were based on crisis management preparedness (Hilliard *et al.*, 2011; Novelli *et al.*, 2018).



There are very few studies focussed on the hotel industry, especially on how to cope with an epidemic crisis. Hotel industry stakeholders are now looking for executive strategies for crisis management practices in response to the pandemic. There is thus, an urgent need to fill this research gap.

The World Health Organisation (WHO) released the first situation report on 2019-nCoV on 21 January 2020 (WHO, 2020a), updated its assessment of the outbreak as a public health emergency of international concern on 31 January (WHO, 2020b) and described the outbreak as a pandemic on 11 March (WHO, 2020c). The epicentre of the COVID-19 outbreak shifted from China to Italy, Spain and the USA in just two months. In the initial stage of the epidemic outbreak (mid-January to the end of February), many tourist destinations in Asia, where the Chinese are the major visitors, executed crisis management practices for the hotel industry in response to COVID-19. With the spread of the pandemic all over the world, the hotel industry's road to recovery has become much longer, and crisis management strategies need to be adjusted over time. However, previous studies in crisis management practices only focussed on a single point in time (Israeli, 2007; Israeli and Reichel, 2003; Israeli *et al.*, 2011), and research on epidemic crises was conducted in the post-crisis stage (Lee, 2009; Wan, 2013). This research gap, thus, needs to be filled by having a continuing study in the during-crisis stage to answer the research question of what crisis management practices should be undertaken at different times during an epidemic outbreak.

This study attempts to compare how the hotel industry responded to the initial (early February) and pandemic (early April) stages of the COVID-19 crisis. This study uses importance-usage-performance analysis to classify six categories of practices extended from Israeli and Reichel's (2003) conceptual framework into four crisis management strategies. Although researchers have studied several epidemic crises before, such as severe acute respiratory syndrome (SARS) in 2003 (Johnson Tew *et al.*, 2008; Zeng *et al.*, 2005), most epidemic crises were short. When an epidemic crisis occurs, hotel industry stakeholders expect the crisis will be over shortly and determine crisis management practices based on this assumption. In this case, however, the epidemic crisis has become worse and lasted for a longer period. Besides, the right crisis management practices are time-dependent, as no single solution established by previous studies could be adopted for all situations. By comparing the changes of the initial stage with the pandemic stage, this continuing study contributes to our knowledge of contingencies in crisis management for the hotel industry that can fit the evolution of the crisis. It also demonstrates the processes of importance-usage-performance analysis for researchers to undertake further studies in tourism crisis management. Recommendations are provided for governments and hotel industry stakeholders to guide their responses to the crisis.

2. Literature review

2.1 *Tourism crisis management in the hotel industry*

Crisis management is a popular topic in the tourism and hospitality sectors. Many previous studies have emphasised the important linkage between crisis and tourism. For example, De Sausmarez (2007) argued that the damage caused by a crisis threatens not only the national economy but also the livelihoods of many tourist destinations. Therefore, it is worth monitoring crisis management strategies to minimise the negative effects. Some crises are man-made, such as economic crisis and terrorism. Due to the high uncertainty of the economic environment, economic crises discourage travel (U and So, 2020), and thus, a decrease in tourism demand and the loss of qualified employees (Okumus *et al.*, 2005). The impact of terrorism can, from the tourists' view, be broader and different levels of terrorism threats influence their selection in travel packages (Walters *et al.*, 2019). Travel demand was,

thus, significantly reduced for low-income countries, but not so much for high-income countries (Buigut *et al.*, 2017). Some crises are natural disasters, such as epidemics. Because safety is the priority when tourists plan their tours, epidemic crises can reduce tourist arrivals (U and So, 2020). As the demand for hotel rooms decreases (Song *et al.*, 2011), hotel room rates and occupancy percentage decrease accordingly (Kim *et al.*, 2005). The impact of an epidemic crisis can severely affect the tourism industry (Tsao and Ni, 2016) because normal travel patterns may take over a year to become re-established (Pine and McKercher, 2004). Whatever man-made or natural crises, other than the impacts from the crises themselves, the responses to the crisis can also affect a destination's image and reputation of attractiveness, and thus, their survival and prosperity (Santana, 2004).

In recent studies of crisis management in the hotel industry, researchers have examined how to develop a successful crisis management model. For example, Kovaltchuk *et al.* (2016) examined these concepts and attempted to develop the crisis management model in the Russian hotel industry. Barbe and Pennington-Gray (2018) provided insight into ways of using social media for hoteliers to make crisis communication during a crisis. Abo-Murad and Abdullah (2019) carried out interviews to explore the impact of turnover culture on Malaysian hotels' crisis management. Mikulić *et al.* (2018) applied the principles of integrated risk management to make an exploratory assessment of salient risks for the Croatian tourism industry. Although these studies are valuable for the hotel industry in the preparation for crises, such studies considered crisis management broadly. Therefore, when one certain type of crisis such as an epidemic, happens, there is a lack of detailed crisis management practices for reference.

Previous studies on epidemic crisis management have pointed out the severe impact on the tourism industry and argued that more research should be conducted to understand the different aspects of an epidemic crisis. In studies of SARS, Zeng *et al.* (2005) viewed it as a short-term epidemic and examined the possibilities of new innovations after tourism recovery. McKercher and Chon (2004) argued that the government should take care of over-reaction and lack of coordination that influence long-term tourism development. In studies of Middle East respiratory syndrome (MERS), Shi and Li (2017) modelled tourist arrivals from China to South Korea and found that the impact of the MERS outbreak was significant in terms of total arrivals, but was insignificant for business travel. It is obvious that the epidemic crisis is an important topic for the hotel industry, but most of the studies were conducted after, rather than during, an epidemic crisis (Lee, 2009; Wan, 2013). Though some of the studies were conducted to examine the impact of COVID-19 (Baum and Hai, 2020; Baum *et al.*, 2020), there is still a lack of research examining the effective crisis management practices during an epidemic crisis in the hotel industry. Given the seriousness of COVID-19 pandemic, a timely study examining how hotels perceive and react to this crisis can provide insight for future epidemic crises.

2.2 Crisis management practices

In the context of crisis management practices, Israeli and Reichel (2003) were the first to examine the connection between the usage and importance of crisis management practices in the Israeli hospitality industry. They interviewed 13 managers and, combined with a study of the literature, constructed four categories of practices. They referred to Mansfeld (1999) and developed the "marketing" category. They divided cost cuttings into "human resources" and "maintenance" and took "governmental assistance" as external support. Their framework consists of 21 items. Israeli and his co-authors extended the framework with minor revisions to the restaurant industry (Israeli, 2007), Indian luxury hotels (Israeli *et al.*, 2011) and travel agency sectors (Perl and Israeli, 2011). Their studies concluded that

stakeholders were reactive, and managers strongly looked for support from the government. However, after experiencing many crises, we still do not know whether stakeholders could learn from the crises and change their preferences.

To better understand crisis management practices, we should recognise that a crisis consists of multiple stages, such as pre, during and post (Ritchie, 2004). The pre-disaster stage is before a triggering event, and research in the pre-disaster phase aims to develop a state of readiness (Carmeli and Schaubroeck, 2008). Research in the post-disaster phase aims to critically examine the lessons learned and facilitate the management of future incidents; however, the research aim in the during-crisis stage is different, it is to develop emergency management and contingency management (Sawalha *et al.*, 2013). Counting the number of studies of crisis management practices in different stages, most of the studies were conducted after the crisis. This study has a good value for tourism crisis research because it is conducted during the COVID-19 crisis.

2.3 Importance-performance analysis

The concept of importance-performance analysis (IPA) is originated from Martilla and James (1977) and has been widely used for tourism research for prioritising tourism service improvements (Evans and Chon, 1989). The two-dimension importance-performance mapping (IP mapping) consists of four quadrants, as shown in Figure 1(a). The x-axis is the performance and the y-axis is the importance. Service attributes of high importance that are poorly performed fall in Quadrant I. For these, the “concentrate here” (or prioritise) strategy is applied to assign more resources to improve performance. The “keep up the good work” (or maintain) strategy is used for service attributes in Quadrant II (high importance and high performance), which are the competitive strengths of tourism firms. The not-so-important service attributes fall in Quadrant III (low importance and low performance); although they are not performed well, they pose less of a threat to the tourism firm, and thus, the “low priority” strategy is applied. However, for those well-performed but

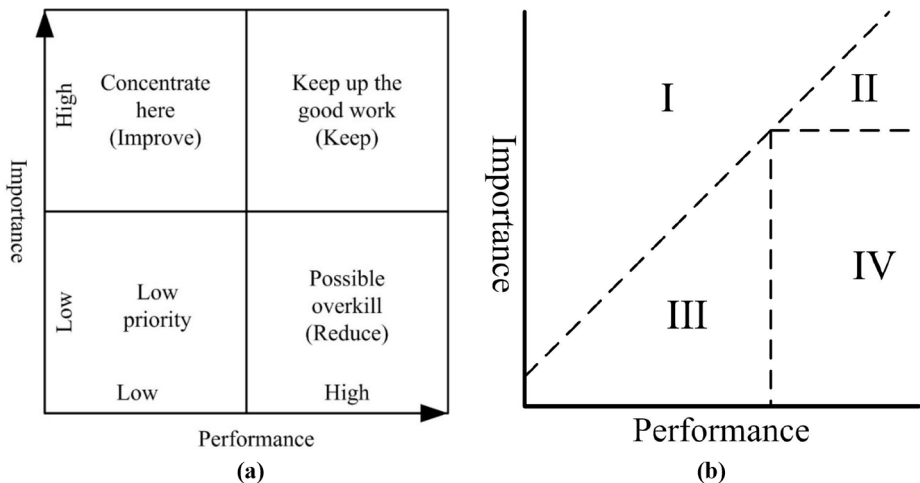


Figure 1.
Traditional and
advanced
importance-
performance
mappings

Notes: (a) Importance-performance mapping (adapted from Martilla and James, 1977); (b) Data-centered diagonal line model (adapted from Lai and Hitchcock, 2015)

not important service attributes, the “possible overkill” strategy should be used to save resources for items in Quadrant IV. By examining the points in each quadrant, the tourism firm can develop an action plan for improvements (Bacon, 2003).

To improve its discriminative power, researchers have made different modifications to this scheme (De Nisco *et al.*, 2015; Rial *et al.*, 2008). Recently, Lai and Hitchcock (2015) have provided a comprehensive framework for addressing the reliability and validity issues. They also introduced a “data-centred diagonal line” model, for which a diagonal line is used to separate the “concentrate here” quadrant, as shown in Figure 1(b). Although IPA was commonly used to measure the hotel performance by guests (Lai and Hitchcock, 2016), there is a constraint for hotel staff taking self-evaluation in their service performance because of the response bias. This study also attempts to overcome this constraint to advance the framework for tourism crisis management research.

3. Research method

3.1 Measurement and questionnaire design

A review of the social sciences citation index listed journals in the category of hospitality, leisure, sport and tourism since 2000, revealed that 4 out of 23 empirical articles were Israeli’s works. Israeli’s framework is a useful tool for evaluating crisis management practices, and this framework has dominated the research in crisis management practices. This study thus, borrows Israeli’s framework and makes a further revision to suit the case of COVID-19. In-person online structured interviews were conducted with five hotel managers working for different hotels through WhatsApp on 30 January 2020. They had 7 to 25 years of experience in the hotel industry and two of them worked in hotels during SARS. The interviews discussed the measurable items individually. For marketing, with a specific focus on the location, they suggested that the location should be “relative safety”. For human resources practices, according to the practices in the 2008 financial crisis, they added an item “provide voluntary early retirement or resignation plans” and modified “reducing the number of working days” to “reducing the number of office hours or working days” and “freezing pay rates” to “freezing or reducing pay rates”. They strongly opposed the item “firing employees to reduce labour force” because the word “firing” may create a response bias. Therefore, this item was revised to “reducing the labour force by laying off employees”. For maintenance, they argued that the hotel services in the item “cost cuts by limiting hotel services” should be related to hotel facilities. Therefore, they revised it as “cost cuts by closing less used facilities”. For governmental assistance, because there is no municipality tax in Macau, this item was deleted. However, they replaced “governmental assistance with current expenses” to “provide subsidies to hotel employees” because the labour cost is commonly the largest hotel expense. They also added three items that the government applied during the 2008 financial crisis. These were, namely, “providing subsidies to customers who consume hotel rooms”, “providing subsidies to local residents who consume hotel facilities” and “holding international events to attract customers to Macau”. Due to the political climate, they removed “organising a protest against the lack of government support”. Hotel cleanliness is more important in light of the COVID-19 because hotel guests tend to prioritise their health and hygiene (Jiang and Wen, 2020). In response to the pandemic, hotel managers also suggested seven practices in the category “epidemic prevention” covering disinfection and prevention procedures.

Following the procedures of Lai and Hitchcock (2015) to check any misunderstandings or ambiguities in the content of the 31 practices in five categories, the questionnaire was further validated by two external professors. They supported the deletion of the item “organising a protest against the lack of government support” because governmental

assistance should stand on what the government believes should be done. They also suggested that the subject of the items for governmental assistance could be changed from “industry-wide” to “government”. Based on this feedback, the revised version was translated into Chinese. Then, referring to [Lai and Hitchcock’s \(2015\)](#) guideline, the bilingual version was tested with 10 hotel managers to evaluate its readability. They did not have any difficulties answering the questions related to various aspects of hotel operation. A selection of “N/A” in the demographic information was added to prevent response bias. The Chinese version has been back translated to check the consistency with the previous translation.

[Table 1](#) shows the 31 practices for the study.

The questionnaire is divided into four sections:

- (1) the importance of the 31 practices (scale 1–9);
- (2) respondents’ demographic information;
- (3) usage of the 31 practices (scale 1–10); and
- (4) perceived performance in five categories (scale 1–7).

Category	Practice	Code
Marketing practices	Reducing prices on special offers	MK1
	Reducing list prices of office services	MK2
	Marketing to foreign tourists with a specific focus on the location’s distinctive features and relative safety	MK3
	Marketing and promoting new products or services	MK4
	Marketing to new segments	MK5
	Marketing to domestic tourists in joint campaigns with local merchants	MK6
	Advertising on different media channels	MK7
Maintenance practices	Cost cuts by postponing office maintenance	MT1
	Cost cuts by postponing systems’ maintenance	MT2
	Cost cuts by purchasing lower-cost office supplies	MT3
	Cost cuts by closing less used facilities	MT4
	Extending credit or postponing scheduled payments	MT5
Epidemic prevention	Implement body temperature checks for customers at the entrances	EP1
	Provide sufficient protective materials (such as masks) to employees	EP2
	Educate employees about the knowledge of epidemic prevention	EP3
	Remind guests of the importance of epidemic prevention	EP4
	Implement sufficient cleaning and disinfection in public areas in hotels	EP5
	Implement sufficient cleaning and disinfection in hotel rooms	EP6
	Develop and implement standardised epidemic prevention procedures	EP7
Human resources practices	Reducing the labour force by laying off employees	HR1
	Reducing the labour force by unpaid vacation	HR2
	Reducing the number of office hours or working days	HR3
	Freezing or reducing pay rates	HR4
	Replacing high-tenure employees with new employees	HR5
	Increased reliance on outsourced human resources	HR6
	Provide voluntary early retirement or resignation plans	HR7
Governmental assistance	The government provides tax benefits	GA1
	The government provides subsidies to hotel employees	GA2
	The government holds international events to attract customers to Macau	GA3
	The government provides subsidies to customers who consume hotel rooms	GA4
	The government provides subsidies to local residents who consume hotel facilities	GA5

Table 1. Epidemic crisis management practices for the hotel industry

Because the common scale format on questionnaires is one of the potential sources of common method biases (Podsakoff *et al.*, 2003), researchers have used different point-scales in their studies (Huang *et al.*, 2020). This study thus, adopts different point-scales to reduce common method bias and stereotypical effects.

3.2 Importance-usage-performance analysis

This study is based on the framework of Israeli and Reichel (2003). IPA is appropriate for identifying crisis management practices that should be done to cope with the COVID-19 crisis because it can prioritise items for actions. However, Israeli and Reichel's (2003) framework only measures the "usage level". To determine "usage performance" when making the IP mapping, a conversion step is suggested. Measurement of the performance of each category is used to obtain the indirect value of the usage performance of each crisis management practice. Correlation analysis is used to quantify the influence of usage level (as an independent variable) on the performance of its category (as a dependent variable) for each practice. Because this newly developed method involves the importance of the item, its level of usage and the performance of its category, this method is called "importance-usage-performance" analysis. Figure 2 shows the process for this method.

The correlation value between the usage of each practice and the perceived performance of its category is the indirect measure of its performance of usage. For example, the correlation between the usage of MK1 and the perceived performance of marketing is the indirect measure of the performance of usage of MK1. The direct measure of importance and the indirect measure of performance of usage for each practice are used to plot along the x-axis and the y-axis, respectively, in the IP mapping.

3.3 Research setting

Macau is a world gaming destination and attracted more than 30 million tourists in 2019 (DSEC, 2019). The receipts of the 116 hotels and guesthouses stood at USD4.66bn in 2018 (DSEC, 2018). After the initial outbreak of COVID-19 in Wuhan, China, in January 2020, the economy of Macau dropped greatly because over 70% of all tourists were from Mainland China (DSEC, 2019). The Macau government, thus, took immediate action in response to the COVID-19 crisis.

In early February, after confirming 10 cases, the Macau government announced the closure of all casinos for two weeks, as well as other entertainment facilities such as cinemas, theatres, fitness centres, bars and discos on 4 February 2020 (Macau Daily Times, 2020). At the end of February, the revenue of Macau's casinos had dropped by 88% compared with the previous year, and hotel occupancy was less than 12% (Casino Review, 2020; WSJ, 2020). It was the worst ever record in Macau.

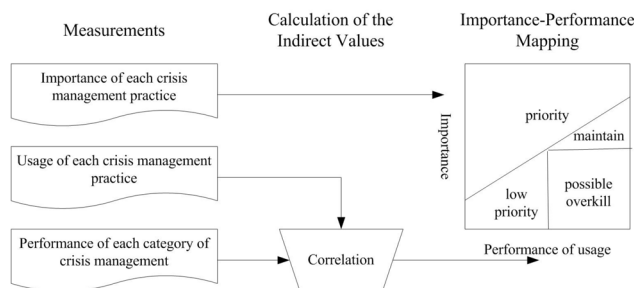


Figure 2. Importance-usage-performance analysis processes

From mid-February to mid-March, there had been no new case. However, when residents thought the government had taken an effective response to control the epidemic crisis and tourism economy could be recovered soon, imported cases began to emerge on 15 March 2020. To control such imported cases, the Macau government prohibited visitors from other countries and suspended bus links over the Hong Kong–Zhuhai–Macau Bridge on 6 April. The Macau government announced an anti-epidemic assistance fund of 10 billion Macau Patacas to help residents and businesses on 8 April (AGB, 2020). Up to 12 April, Macau has seen an increase of 45 cases of COVID-19.

This study covers two stages. The initial stage is the beginning of the outbreak of COVID-19. The pandemic stage is the second wave of COVID-19 in early April.

3.4 Data collection

Following Israeli's studies, the targets of this study were senior hotel staff. During the crisis, online surveys were an effective way to recruit targets through existing mobile social network groups for hotels on WhatsApp and WeChat in Macau. The network groups covered both internal firm groups and hotel association groups. All senior hotel staff in Macau received a survey invitation that explained the aims and sample targets of the study. In the initial stage, after 2 calls for the survey on mobile social network groups, only 184 sets of online questionnaires were collected through an online survey website (www.sojump.com) from 3 to 7 February 2020. Of these, 179 were valid after removing 5 problematic questionnaires (in which most practices were marked with similar points). In the pandemic stage, 253 sets of online questionnaires were obtained from 1 to 4 April 2020. Of these, 244 were valid after removing 9 problematic questionnaires. Because hotel senior staff voluntarily responded to the call for online surveys, there was no response rate. The background of the respondents in these two surveys is shown in [Table A1](#) in the [Appendix](#). Around 30% of the respondents were supervisory level and 70% of respondents were managerial level or above. As they needed to work closely with other departments, they were able to answer questions on various aspects of hotel operations.

3.5 Follow-up in-person interviews

On 10 to 13 June 2020, follow-up in-person online interviews were conducted with three hotel general managers (who were not the same as those interviewed for the scale development and have not participated in the surveys) to review the practices that have been taken in the hotel industry with the results of this study. To prevent response bias, the interviewer asked what practices their hotels had been taking, without telling the interviewees the results of the study. The aim of the follow-up interviews is not to identify concepts and build theory, there is no rule for setting a particular sample size. Referring to [Creswell \(2007\)](#), a range of three to five interviews per case can prevent the bias with a single source. The duration of in-person interviews was around an hour each. The interviews were audio-recorded, and then the important points were converted to text. As these three general managers are responsible for all aspects of crisis operations at their hotels, they could provide valuable information about their hotel crisis management practices. Therefore, follow-up interviews can offer an explanation to the survey results in the discussion section.

4. Results

4.1 Descriptive analysis

[Table 2](#) shows the means and standard deviations of the importance and usage of crisis management practices in the two surveys. The highest values of importance and usage belong to the epidemic prevention group in both surveys. However, the highest mean values

Code	Initial stage				Pandemic stage			
	Importance		Usage		Importance		Usage	
	(1–9) Mean	SD	(1–10) Mean	SD	(1–9) Mean	SD	(1–10) Mean	SD
MK1	6.101	2.415	6.302	2.572	6.906	1.867	7.086	2.001
MK2	5.765	2.429	5.994	2.593	6.160	1.964	6.508	2.031
MK3	7.514	1.784	6.810	2.643	7.328	1.846	7.148	2.200
MK4	6.447	2.306	6.475	2.819	6.393	1.858	6.926	2.099
MK5	6.665	2.203	6.726	2.641	6.619	1.771	6.943	2.009
MK6	6.799	2.048	6.687	2.527	6.959	1.679	7.070	2.016
MK7	6.654	2.062	6.860	2.594	6.955	1.628	7.340	1.938
MT1	6.972	1.936	7.296	2.331	6.648	1.868	7.246	1.979
MT2	6.274	2.215	7.145	2.434	6.074	1.953	6.943	2.089
MT3	5.514	2.397	6.804	2.605	5.262	2.358	6.611	2.356
MT4	7.028	1.950	7.743	2.271	6.488	1.999	7.279	2.091
MT5	6.419	1.916	5.883	2.534	6.279	1.920	6.365	2.183
EP1	8.575	0.847	9.112	1.572	8.377	1.183	8.840	1.747
EP2	8.726	0.634	8.642	2.035	8.459	1.091	8.668	1.770
EP3	8.676	0.692	8.520	2.034	8.443	1.060	8.775	1.714
EP4	8.603	0.817	8.693	1.845	8.357	1.112	8.693	1.792
EP5	8.788	0.540	8.989	1.608	8.590	0.969	8.926	1.553
EP6	8.726	0.685	8.894	1.727	8.557	0.988	8.824	1.693
EP7	8.721	0.645	8.911	1.612	8.516	1.014	8.779	1.701
HR1	3.760	2.478	4.430	2.891	5.131	2.148	5.648	2.426
HR2	5.402	2.388	6.101	2.915	5.783	1.848	6.184	2.370
HR3	6.123	2.260	6.654	2.713	6.213	1.697	6.471	2.209
HR4	3.933	2.345	4.899	3.045	5.066	2.114	5.680	2.344
HR5	3.291	2.250	4.117	2.707	4.086	2.155	4.799	2.362
HR6	4.173	2.442	4.922	2.726	5.184	1.845	5.611	2.156
HR7	5.134	2.523	5.162	2.921	5.898	1.889	6.090	2.292
GA1	7.464	1.824	6.492	2.781	7.574	1.405	7.119	2.274
GA2	7.453	1.867	5.788	2.880	7.389	1.550	6.762	2.368
GA3	6.687	2.516	5.966	2.920	6.561	2.114	6.143	2.626
GA4	5.866	2.632	5.168	2.917	6.590	1.995	6.066	2.622
GA5	6.235	2.470	5.391	2.902	6.557	1.914	6.287	2.551

Table 2.
Descriptive analysis

of importance and usage in the initial survey are higher than the highest mean values in the pandemic stage (importance: 8.788 vs 8.590; usage: 9.112 vs 8.926). The lowest values of importance and usage belong to the human resource group in both surveys. The lowest mean values of importance and usage in the initial survey are lower than the mean values in the pandemic stage (importance: 3.291 vs 4.086; usage: 4.117 vs 4.799). Therefore, the ranges of importance and usage in the initial stage are wider than the ranges in the pandemic stage. Table 3 shows the means and standard deviations of the perceived performance of the five categories in the two surveys. Respondents rated the perceived performance higher in the pandemic stage.

4.2 Data quality assessment

Because this study has revised and amended the attributes, exploratory factor analysis was conducted using statistical package for the social sciences version 19 on the data collected in the initial stage as recommended by Lai and Hitchcock (2015). The initial Kaiser-Meyer-Olkin (KMO) value suggested that data were adequate for factor analysis (KMO = 0.812).

After one cycle reduction, 30 items were retained in six categories, as shown in Table A2 in the Appendix. The final KMO value was 0.813. The six categories were pricing (two items), marketing (five items), maintenance (four items), epidemic prevention (seven items), human resources (seven items) and governmental assistance (five items). All factor loadings are higher than 0.6, and the lowest one is 0.608. The convergent validity is assured (Hair et al., 2010).

Confirmatory factor analysis was conducted using SmartPLS (Ringle et al., 2015) to further assess the quality of two sets of data, as recommended by Lai and Hitchcock (2015). The use of partial least squares-structural equation modelling is advantageous when analysing small sample sizes (Hair et al., 2017). As shown in Table 4, for two sets of data, the values for Cronbach's alpha and the construct reliability (CR) of six factors are above the recommended reliability level of 0.7. The values of the average variance extracted (AVE) of six factors exceed the minimum criterion of 0.5. The square root of the AVE of each factor exceeds the correlations between it and other factors. Internal consistency, CR, convergent validity and discriminant validity are thus, also assured (Hair et al., 2010).

Table 3.
Perceived performance in epidemic crisis management

Code	Performance measure	Initial stage		Pandemic stage	
		Mean	SD	Mean	SD
MKP	I believe that my hotel will perform well in marketing practices for this crisis	5.095	1.452	5.295	1.076
MTP	in maintenance practices for this crisis	5.268	1.401	5.357	1.083
EPP	in epidemic prevention practices for this crisis	5.542	1.403	5.668	1.075
HRP	in human resources practices for this crisis	5.011	1.502	5.205	1.190
GAP	I believe that the government will perform well in governmental assistance practices for this crisis	5.156	1.546	5.324	1.305

Table 4.
Reliability, construct validity and discriminant validity

Practice	Cronbach's alpha	CR	AVE	PR	MK	MT	EP	HR	GA
<i>Initial stage (early-February 2020)</i>									
Pricing (PR)	0.918	0.960	0.924	0.961					
Marketing (MK)	0.867	0.904	0.654	0.436	0.809				
Maintenance (MT)	0.790	0.861	0.611	0.215	0.188	0.782			
Epidemic prevention (EP)	0.932	0.942	0.700	-0.059	0.139	0.183	0.837		
Human resources (HR)	0.850	0.884	0.524	0.108	0.167	0.292	-0.079	0.724	
Governmental assistance (GA)	0.836	0.883	0.602	0.246	0.396	0.253	0.184	0.318	0.776
<i>Pandemic stage (early-April 2020)</i>									
Pricing (PR)	0.803	0.908	0.831	0.912					
Marketing (MK)	0.817	0.873	0.580	0.407	0.762				
Maintenance (MT)	0.766	0.833	0.561	0.249	0.229	0.749			
Epidemic prevention (EP)	0.960	0.967	0.806	0.015	0.214	0.063	0.898		
Human resources (HR)	0.844	0.878	0.509	0.257	0.173	0.354	-0.119	0.713	
Governmental assistance (GA)	0.759	0.837	0.509	0.247	0.377	0.171	0.293	0.283	0.714

Notes: : AVE – average variance extracted; CR – composite reliability; *Italic front* – square-root of AVE

4.3 Importance-performance mapping in the initial stage

Table 5 shows the values of the correlation between each crisis management practice and the performance of its category. In the initial stage, the highest and lowest correlation values are 0.475 (between MK4 and MKP) and -0.059 (between HR4 and HRP), respectively. These values are used for usage to plot IP mapping with the values of importance (from Table 2), as shown in Figure 3. The grand mean values of importance (6.602) and usage performance (0.273) are used as cross-points in the mapping. The diagonal line is the regression line with the best fit. In total, 17, 5, 5 and 3 practices fall in Quadrant I, II, III and IV, respectively. All items of epidemic prevention and maintenance are in Quadrant I.

4.4 Importance-performance mapping in the pandemic stage

In the pandemic stage, the highest and lowest correlation values are 0.405 (between EP5 and EPP) and 0.092 (between HR4 and HRP), respectively. Figure 4 shows the IP mapping for the pandemic stage. The grand mean values of importance and usage performance are 6.771 and 0.289, respectively. In total, 16, 3, 5 and 6 practices fall in Quadrants I, II, III and IV, respectively. All items for epidemic prevention remain in Quadrant I.

4.5 Comparison between two stages

Because the importance and level of usage were measured with different scales (1–9 scale for importance and 1–10 scale for level of usage), the usage levels were adjusted by * 9/10 to be on the same scale as importance in calculating the difference between importance and usage. As shown in Table 6, EP1 (+5), HR3 (+5), MK1 (+4) and HR6 (+4) show the greatest positive changes in the ranking of difference between importance and usage; MK4 (-8), MT1 (-5), EP3 (-5) and MT4 (-4) show the greatest negative changes in the ranking of difference between importance and usage; GA1, GA2, GA3, GA5, HR1, HR5, HR7, MK2, MK6, EP2 and MT3 show little or no changes in the ranking of difference between importance and usage.

Code	MKP	MTP	EPP	HRP	GAP
<i>Initial stage (early-February 2020)</i>					
MK1	0.210	MT1	0.269	EP1	0.277
MK2	0.140	MT2	0.205	EP2	0.474
MK3	0.421	MT3	0.082	EP3	0.405
MK4	0.475	MT4	0.160	EP4	0.346
MK5	0.435			EP5	0.442
MK6	0.399			EP6	0.417
MK7	0.416			EP7	0.472
				HR1	0.050
				HR2	0.084
				HR3	0.066
				HR4	-0.059
				HR5	0.002
				HR6	0.088
				HR7	0.145
				GA1	0.314
				GA2	0.369
				GA3	0.350
				GA4	0.350
				GA5	0.394
<i>Pandemic stage (early-April 2020)</i>					
MK1	0.334	MT1	0.214	EP1	0.382
MK2	0.368	MT2	0.152	EP2	0.347
MK3	0.352	MT3	0.183	EP3	0.329
MK4	0.378	MT4	0.203	EP4	0.355
MK5	0.305			EP5	0.405
MK6	0.351			EP6	0.393
MK7	0.370			EP7	0.397
				HR1	0.173
				HR2	0.066
				HR3	0.119
				HR4	0.092
				HR5	0.133
				HR6	0.314
				HR7	0.201
				GA1	0.382
				GA2	0.358
				GA3	0.260
				GA4	0.352
				GA5	0.392

Table 5. Correlation between the usage and the perceived performance

Notes: MKP – predicted performance of marketing practices; MTP – predicted performance of maintenance practices; EPP – predicted performance of Epidemic prevention; HRP – predicted performance of human resources practices; GAP – predicted performance of governmental assistances

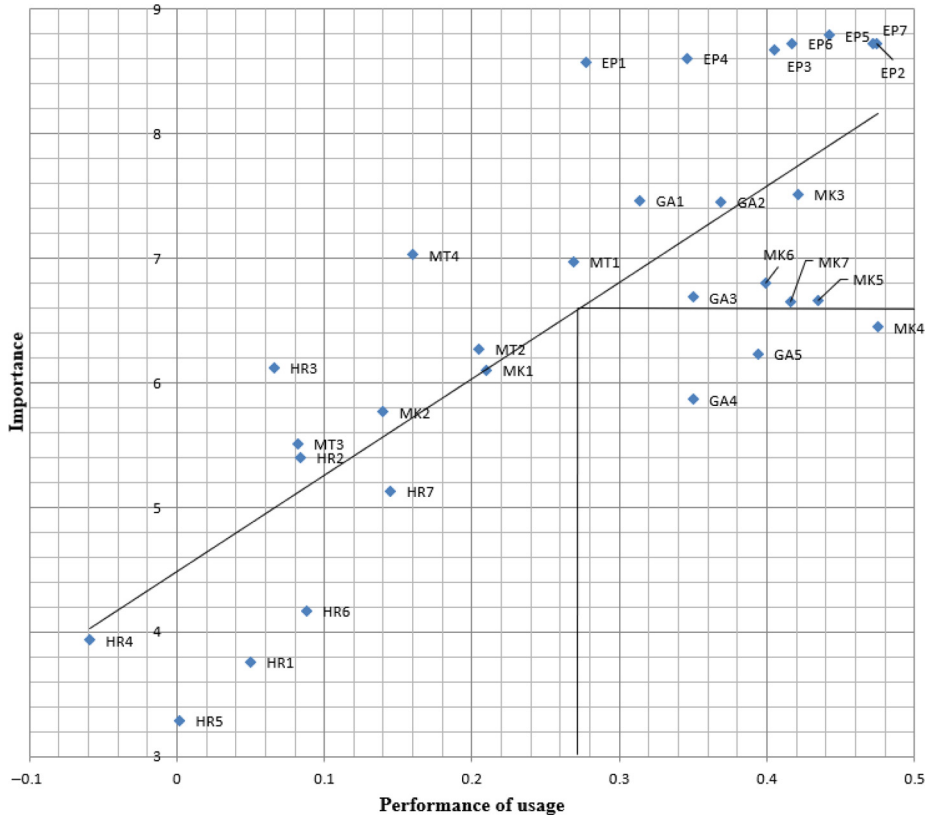


Figure 3.
The importance-
performance
mapping (initial
stage)

Comparing the relocations of the crisis management practices into four quadrants in IP mapping, two pricing practices (MK1: I → II and MK2: I → IV) and one maintenance practice (MT3: I → III) move from Quadrant I to other quadrants. One marketing practice (MK3) and one government assistant practice (GA3) are upgraded from Quadrant II to Quadrant I. One marketing practice (MK5) is downgraded from Quadrant II to Quadrant IV. Other practices remain in the same quadrants except for HR6, which is relocated from Quadrant III to Quadrant IV. For the distances of the crisis management practices from the diagonal line in Quadrant I, EP1, EP4, MT4, EP3 and HR3 are far from the line in the initial stage. In the pandemic stage, all items for EP, as well as HR2 and HR3, are far from the diagonal line. HR2 and MT4 show a large change.

5. Discussion and conclusions

5.1 Conclusions

Considering the movements of the crisis management practices in the quadrants, most of the marketing practices are downgraded. In the initial stage, hotel managers hoped that the epidemic crisis could be resolved within a short period. Therefore, they suggested reducing the price to increase demand. However, after reaching the pandemic stage, they knew that marketing tactics would be useless in increasing sales and preferred to save marketing

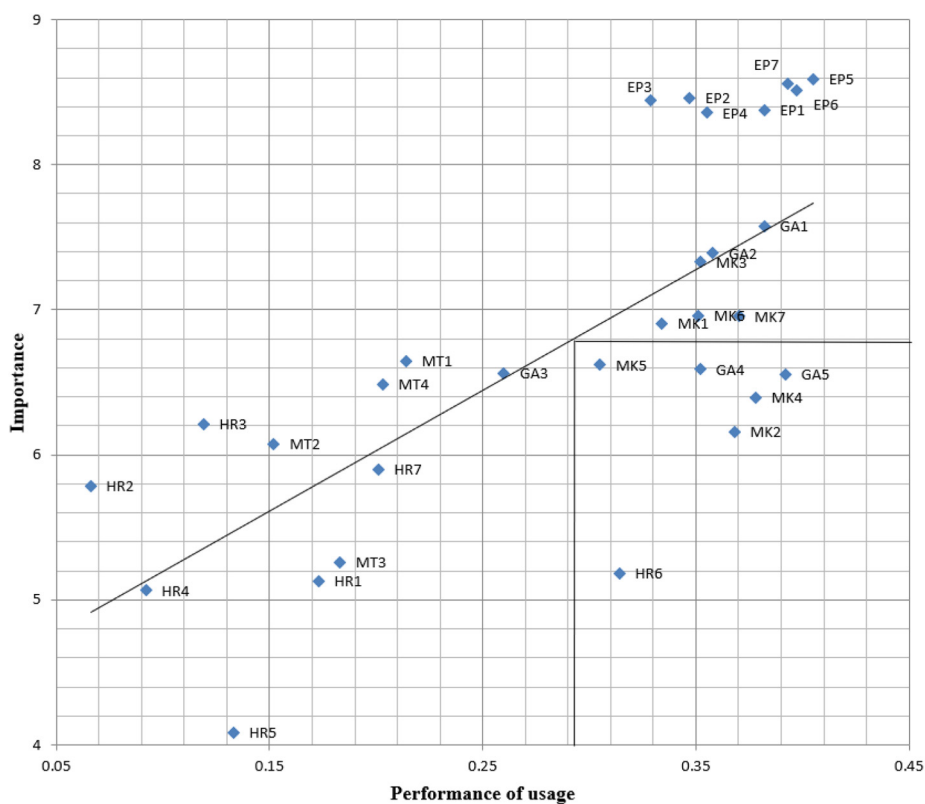


Figure 4.
The importance-performance mapping (pandemic stage)

budgets for preparations after the end of the pandemic. Follow-up interviews have clarified this, as managers foresaw that marketing practices would be upgraded during the ending stage of COVID-19. This occurred in the case study of [Kim et al. \(2005\)](#), where many hotels in Korea offered discounted rooms at the end of the SARS crisis and successfully increased the occupancy rate to the same level as prior to the SARS outbreak. As the second survey was conducted in the early April, hotel managers supported marketing to foreign tourists (MK3, which was upgraded to Quadrant I), as there were no Chinese tourists. Subsequently, as the pandemic became more serious in Europe and the USA, the general managers in the follow-up interviews in June did not propose marketing tactics to foreign tourists.

[Rial et al. \(2008\)](#) suggested the use of the distance from the diagonal line to rank the priority of executing actions. Among human resource practices, reducing the number of office hours or working days (HR3) is one of the high priority actions in both stages. However, reducing the labour force by unpaid vacation (HR2) becomes a high priority action at the pandemic stage. Because labour costs account for roughly 50% of operating costs ([Mandelbaum, 2017](#)), executing these two practices can effectively reduce operation costs during the crisis. Other human resource practices cannot help much in responding to the crisis, especially replacing workers with new employees (HR5) and outsourcing (HR6). On the other hand, although [Del Mar Alonso-Almeida and Bremser \(2013\)](#) disagreed about cost reduction through reducing customer added value, hotel managers in this study supported

Code	Initial stage Ranking ^{(a)(b)}	Pandemic stage Ranking	Difference in ranking	Initial stage Quadrant	Pandemic stage Quadrant
MK1	18	14	4	I	II
MK2	21	20	1	I	IV
MK3	3	6	-3	II	I
MK4	14	22	-8	IV	IV
MK5	15	18	-3	II	IV
MK6	9	10	-1	II	II
MK7	17	19	-2	II	II
MT1	19	24	-5	I	I
MT2	25	28	-3	I	I
MT3	30	30	0	I	III
MT4	23	27	-4	I	I
EP1	20	15	5	I	I
EP2	8	7	1	I	I
EP3	7	12	-5	I	I
EP4	10	13	-3	I	I
EP5	13	11	2	I	I
EP6	11	8	3	I	I
EP7	12	9	3	I	I
HR1	26	25	1	III	III
HR2	24	21	3	I	I
HR3	22	17	5	I	I
HR4	29	26	3	III	III
HR5	28	29	-1	III	III
HR6	27	23	4	III	IV
HR7	16	16	0	III	III
GA1	2	2	0	I	I
GA2	1	1	0	I	I
GA3	5	4	1	II	I
GA4	6	3	3	IV	IV
GA5	4	5	-1	IV	IV

Table 6.
Comparison between
initial and pandemic
stages

Notes: ^(a)Ranking is the ranking of difference between performance and usage. ^(b) difference between performance and usage = performance – usage * 9/10

limiting facility maintenance (MT1, MT2 and MT3) to save money during crisis periods. Follow-up interviews revealed that, with the longer duration of the pandemic, hotels are cutting labour and maintenance costs more seriously. Although the survey at the pandemic stage did not support providing voluntary early retirement or resignation plans (HR7), hotel general managers foresaw that there would be a wave of resignations in the short-term.

Based on the changes in the ranking of differences between performance and usage (as shown in Table 6), although some practices in different categories show a great change, some governmental assistance (GA1, GA2, GA3 and GA5) and human resource practices (HR1, HR5 and HR7) maintained similar rankings. In the IP mappings, six out of seven human resource practices and four out of five governmental assistance practices remain in the same quadrant. This implies that in either the initial stage or pandemic stage, the strategies for implementing these two categories do not need to be adjusted. Follow-up interviews explained that these actions have become common because of the 2008 financial crisis. As governmental assistance does not cost hotel any money, hotel managers agreed that it needed to be executed continuously. However, the locations shift closer to the

diagonal line, indicating a reduced priority because the government had already released policies to help residents. Hotel managers, thus do not expect any further assistance from the government. The significance of governmental assistance may be downgraded in the ending stage of the epidemic. For human resource practices, it is hard to recruit skilled workers in Macau because of the lack of labour force. Therefore, hotel managers want to maintain strategies to minimise the impact on staff in both stages of the crisis.

5.2 Theoretical implications

The original design of IPA commonly uses direct measures for both importance and performance of each tourism service to construct an IP map (Lai and Hitchcock, 2015). Because tourists are customers, there is no conflict in measuring tourism service providers' performance. However, in this case, senior hotel staff may have conflicts in directly measuring the performance of some practices. To eliminate response bias, this study measured the level of usage of each practice and then correlated this with the perceived performance of its category. Matzler *et al.* (2003) supported the use of correlation analysis to get indirect values because it can eliminate multi-collinearity. Furthermore, hotel managers rated the importance of practices based on the industrial environment. Direct measures can thus, be used. However, as each hotel may have different usage levels, indirect measures correlated with the perceived performance are appropriate. This study demonstrates how importance-usage-performance analysis works in avoiding response bias. The applications of importance-usage-performance analysis are not limited to tourism crisis management, and researchers are encouraged to use this method for tourism research in other contexts.

Through in-person interviews, this study extends Israeli and Reichel's (2003) conceptual framework. Apart from adding seven epidemic prevention practices, three items of human resources are revised with four items of governmental assistance added. Finally, the number of practices was increased from 21 to 30. The results show that all epidemic prevention practices fall in Quadrant I in both the initial and pandemic stages and should be the top priority. Given COVID-19 is a hot topic in tourism research, this study contributes to a measurement scale for epidemic prevention practices that can be used for COVID-19 related tourism research. The study by Israeli *et al.* (2011) on Indian luxury hotels during or shortly after terrorist attacks showed that consistent with Israeli's previous studies, managers focussed on government support. When only four of Israeli's categories are considered, the priority ranking of crisis management practices, according to the distance from the diagonal line, showed the priority of governmental assistance is lower than some cost reduction practices (HR2, HR3, MT1, MT2 and MT4). This implies that, unlike 10 years ago, stakeholders have gained knowledge from previous crises and selected proactive crisis management practices. Hotel operators understand that to reduce loss and recover faster than their competitors, they should not rely only on government actions.

As noted above, the significance of certain practices varies in the two stages. The demand for governmental assistance, for example, declined in the pandemic stage. Although researchers commonly agreed that different crisis management strategies should be considered in different periods of the crisis, there is a lack of studies crossing the crisis periods to explain such changes. According to the results, the respondents' perception of the importance of practices changed over time (Figure 5). The follow-up interviews provided insight to explain the changes. For practices that have rooms for executive oversight, such as human resources, the perception of their importance increased. On the other hand, for practices that have nothing more to be done, such as maintenance and epidemic prevention, their perceived importance decreased. This study explores changes in crisis management

practices that are useful for researchers to develop the theories of contingency in crisis management.

5.3 Practical implications

Previous studies in crisis management practices focussed on the government’s reactive actions. This study changes the view of hotel managers from reactive to proactive in undertaking epidemic prevention, human resource, maintenance and marketing practices. For example, in the initial stage, respondents believed that “body temperature checks for customers” (EP1) should be given the highest priority. In the pandemic stage, however, they were more concerned about educating “employees about the knowledge of epidemic prevention” (EP3). This indicates that managers changed their attitudes from reactive to proactive. Follow-up interviews reflected that hotel staff were no longer in a passive state when dealing with this epidemic crisis. Appropriate training should be arranged for staff in taking precautions against epidemics. The training should include outbreak communication guidelines, standard precautions, infection control and hygiene techniques. Providing training helps reduce the likelihood employees and guests get the virus, while also building the hotel’s reputation.

In the initial stage, reducing the number of office hours or working days (HR3) was a strategy applied. Hotels should manage their operations to ensure good performance by limiting hours to necessary work, such as security and reducing hours for less important tasks such as laundry service. Taking voluntary no-pay leave (HR2) could also be considered if the outbreak continues. Follow-up interviews confirmed these two arrangements and revealed that some colleagues were seeking jobs. Therefore, the forecast of “resignation plans” (HR7) becomes important in the later stages of the crisis. Furthermore, senior management should consider taking a voluntary 10%–30% pay cut to show their support for staff.

Reducing maintenance costs should be undertaken in both stages. In the initial stage, respondents considered closing less-used facilities (MT4). However, as the outbreak continues, hotels should cut costs by taking actions in all maintenance tasks except “purchasing lower-cost office supplies” (MT3). Hotels could postpone maintenance tasks without reducing their service quality. For some facilities that involve safety considerations, such as elevators, hotels should keep their maintenance as normal.

The governmental assistance to stimulate internal consumptions (GA4 and GA5) might not work during the crisis. The occupancy rate of hotels in Macau dropped to 11% in the initial stage and the five-star hotels stood at 6.6% in the pandemic stage. Because the hotel industry needs to continue coping with the devastating impact of COVID-19, the government may consider different forms of support other than tax benefits (GA1) to the hotel industry. These actions may not immediately help hotel employees, however, because

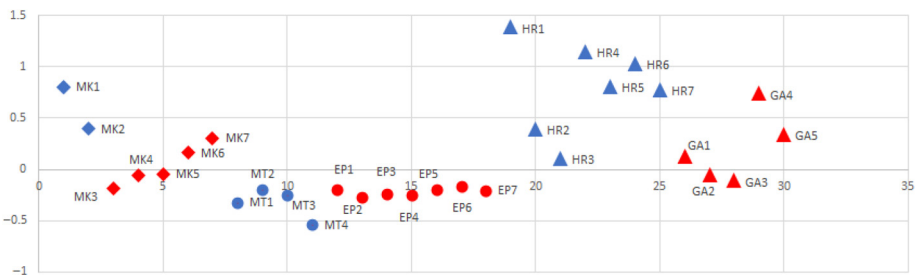


Figure 5. Changes of importance of the practices

the bonus from gambling revenues is a large part of the income for employees in casino hotels. Without such bonuses, some employees cannot afford their heavy home mortgages and childcare expenses. Given the strong fiscal reserves in Macau, the government should maintain subsidies (GA2) for a period of time until the end of the COVID-19 pandemic. Follow-up interviews revealed that some hotel managers foresaw that the outbreak of the epidemic in China could be controlled in summer. Therefore, the government should consider arranging small professional meetings to attract visitors to Macau (GA3). The government should also make a step-by-step plan to help hotels return to their normal operations in the coming months.

Although marketing practices are not emphasised in either the initial or pandemic stages, there was a trend in increasing the importance of marketing practices in the recovery stage. Hotel marketers should prepare promotional plans once the travel ban is lifted. Hotels could even develop and sell special room packages offering discounts for future stays to increase cash flow and speed up the post-crisis recovery.

5.4 Limitations and further research

Invitations were sent to the same social groups on WhatsApp and WeChat for two online surveys because it was hard to implement the face-to-face method during the epidemic. However, more hotel managers filled in the online questionnaires during the pandemic stage. The samples of the two surveys were, thus, not the same group, which might cause a sampling error. Senior hotel staff voluntarily participated in the surveys, so self-selection might create selection bias. Some of the respondents were department managers and might not be familiar with the operations in other departments, causing a potential response bias.

To speed up the recovery, the Macau government could release more assistance in the future. Further studies are recommended in the recovery stage to complete the research of the COVID-19 crisis cycle. This article revealed changes in strategies over time from the view of hotel managers. However, there is no guarantee that the strategic outcomes will be superior. Future post-crisis research should be done to investigate whether these strategies lead to a higher rate of recovery in Macau than elsewhere.

In the initial stage, the impact of the epidemic was mainly to tourist destinations near to China. During the pandemic stage, it became a global disaster. To test the use of importance-usage-performance analysis, further studies are recommended in other tourist destinations. Epidemic crisis strategies for boutique hotels and resorts may vary, and future research could compare the differences across hotel segments.

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Demographics	Descriptive	Initial stage		Pandemic stage	
		Frequency	(%)	Frequency	(%)
Gender	Male	88	49.16	106	43.44
	Female	91	50.84	138	56.56
	N/A	0	0.00	0	0.00
Age	18–20	31	17.32	29	11.89
	21–25	67	37.43	73	29.92
	26–30	42	23.46	65	26.64
	31–35	23	12.85	58	23.77
	36–40	8	4.47	5	2.05
	Over 40	7	3.91	12	4.92
	N/A	1	0.56	2	0.82
Managerial position	Supervisor	51	28.49	78	31.97
	Manager	60	33.52	126	51.64
	Director	34	18.99	31	12.70
	President	13	7.26	9	3.69
	N/A	21	11.73	0	0.00
Your hotel rating	Three-star hotel	3	1.68	22	9.02
	Four-star hotel	59	32.96	78	31.97
	Five-star hotel or above	117	65.36	144	59.02
	N/A	0	0.00	0	0.00

Table A1.
Background
information of
respondents (*n* = 179
and 244)

Code	Pricing	Marketing	Maintenance	Epidemic prevention	Human resources	Governmental assistance
MK1	0.875	0.317	0.097	-0.064	-0.035	0.084
MK2	0.867	0.297	0.158	-0.055	0.120	0.051
MK3	0.137	0.681	0.066	0.182	0.078	0.193
MK4	0.043	0.836	0.077	0.007	0.044	0.053
MK5	0.069	0.867	0.144	0.018	0.103	0.028
MK6	0.118	0.736	0.065	0.047	0.013	0.105
MK7	0.164	0.798	-0.089	0.048	0.001	0.076
MT1	0.035	0.137	0.783	0.144	0.145	0.151
MT2	0.079	0.047	0.828	0.108	0.130	0.137
MT3	0.139	0.013	0.663	-0.092	0.100	-0.008
MT4	-0.035	0.033	0.709	0.198	0.142	0.058
EP1	-0.120	0.074	0.154	0.773	0.023	0.093
EP2	-0.022	0.002	0.060	0.818	-0.075	0.133
EP3	-0.047	0.030	0.026	0.823	-0.061	0.060
EP4	-0.023	0.058	0.037	0.896	-0.060	0.090
EP5	0.062	0.008	0.036	0.825	-0.073	0.064
EP6	-0.009	0.048	-0.009	0.878	-0.093	-0.003
EP7	0.009	0.101	0.085	0.825	-0.051	0.009
HR1	0.085	0.054	0.188	-0.243	0.684	-0.035
HR2	-0.177	0.186	0.200	-0.038	0.737	-0.035
HR3	-0.034	0.102	0.284	0.066	0.667	0.045
HR4	0.099	-0.109	0.173	-0.027	0.756	0.002
HR5	0.165	-0.080	0.043	-0.209	0.737	0.133
HR6	0.071	0.043	-0.174	-0.051	0.645	0.325
HR7	-0.089	0.151	-0.017	0.038	0.761	0.234
GA1	-0.143	-0.003	0.129	0.239	0.081	0.763
GA2	-0.053	-0.020	0.068	0.163	0.004	0.806
GA3	0.133	0.521	-0.044	0.043	0.087	0.608
GA4	0.214	0.250	0.057	-0.017	0.215	0.712
GA5	0.144	0.241	0.171	0.006	0.198	0.726

Table A2.
Rotated component
matrix for practice
importance (KMO =
0.813)

Note: In the first cycle, MT5 was removed because it has two factor loadings between 0.5 and 0.6

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