

COVID-19 and China's Hotel Industry:

Impacts, a Disaster Management Framework, and Post-Pandemic Agenda

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Abstract

This exploratory study reviews the overall impacts of coronavirus disease 2019 (COVID-19) pandemic on China's hotel industry. A COVID-19 management framework is proposed to address the anti-pandemic phases, principles, and strategies. This study also suggests that COVID-19 will significantly and permanently affect four major aspects of China's hotel industry—multi-business and multi-channels, product design and investment preference, digital and intelligent transformation, and market reshuffle.

Keywords: COVID-19, hotel industry, disaster management framework, disaster management strategy, crisis management, China

1. Introduction

The effect on human health has been the most devastating and observable of all the effects of coronavirus disease 2019 (COVID-19). However, the unfolding economic catastrophe resulting from this pandemic sets apart the latter from any disaster in living memory (Huang, 2020). Since the outbreak of COVID-19 at the end of 2019, industries have been plagued by uncertainties, and this scenario is especially evident in the tourism and hospitality industry. As an industry based on human mobility and close interaction, the tourism and hospitality industry is the co-creator and main receiver of the pandemic and its ramifications (Gallen, 2020).

China's (referred to as the Chinese mainland in this paper) hospitality industry was the first to be hit by the devastating impact of the COVID-19. However, it has been presenting early signs of performance recovery since the end of March 2020. The overall effects of COVID-19 on China's hotel industry are depicted in the first section of the study. Depicted later in this study, the anti-pandemic experience and strategies of China's hotel industry would respectively help the hotel industry in other parts of the world to forecast the disastrous scenarios and industry recovery and undertake effective anti-pandemic actions (Valle, 2020). In this regard, to the best of our knowledge, this is the first study to explore the COVID-19 management framework in the context of China's hotel industry; the framework addresses phases, principles, and strategies of the industry's anti-pandemic journey. This study contributes to practical implications by recommending the hotel industry to gain on the major trends that may follow the fundamental and permanent changes that COVID-19 is expected to bring to the industry; this discussion may shed light on the industry activation and revitalization during the post-pandemic era.

2. The Impact of COVID-19 on China's Hotel Industry

China was the first country affected by the health crisis, and thus its hotel industry has encountered severe challenges (China Hospitality Association, 2020; China Tourism Research Institute, 2020; Sun et al., 2020; Zhang et al., 2020). These challenges have affected every stakeholder in the hotel industry. Owing to travel bans and social distancing norms, there has been a decline in tourists' willingness and access to travel. This has led tourists to cancel travel plans and hotel bookings, which has eventually affected the job and income security of hotel employees. The consequential shortage of labor and cash has led to the postponement of hotel renovation projects, decelerating the expansion of domestic hotel groups (Elena, 2020). In order to survive, many hotel owners, especially individual hotel owners, have temporarily shut down or transferred their properties. This scenario has led to a sharp decline in the market value of stocks in the hotel sector. In other words, the pandemic has been devastating hotel firms' market and performance.

The sudden outbreak of COVID-19 swept through Chinese lunar new year—the most important festival in China, casting a dark shadow over the until then thriving hotel industry. During the lunar year, the OCC used to be about 80% and 90%, respectively, in major cities and tourist and fourth- and fifth-tier cities (Lanjing Finance, 2020). However, during this period, the pandemic led to a sharp decline in the OCC of major hotels. Several industry associations and consulting agencies have investigated the overall loss of China's hotel industry. As per the China Hospitality Association (2020), China's hotel industry lost over 67 billion Yuan (approximately US\$9.44 billion) in revenue, and 74.29% hotels in China were closed for an average period of 27 days in January and February 2020. As per STR (2020), from January 14 to 28, the occupancy (OCC) of the hotels dropped from around 70% to 8% and remained under 10% in the following 28 days. Almost 40% of the hotels were shut down temporarily in February. Zhang et al.'s (2020) study on 498 hotels revealed that the overall OCC dropped by 89% in two weeks between January 14 and 28 and, subsequently, remained at around 10% until the end of February. In major cities, hotels' revenue per available room (RevPAR) declined by over 85% year-over-year (YoY) in February (Zhang et al., 2020).

As the pandemic intensified, the financial loss of China's hotel industry continued to the first quarter and its impact was evident in the financial reports of several hotel firms. For instance, concerning domestic brands, in the first quarter of 2020, the second largest hotel group in the world and the largest in China, Jinjiang International, reported a net profit of 171 million Yuan (approximately US\$24.1 million), a YoY decrease of 42.3% (Zhang, 2020). The world's 9th largest and China's 2nd largest hotel group, Huazhu temporarily closed few of its hotels, with the numbers declining from a peak of 2,310 hotels in mid-February to 369 in the subsequent month (Elena, 2020). The quarterly revenue of the BTG Hotel Group (10th largest in the world and 3rd in China) was 801 million Yuan (approximately US\$112.86 million), which indicated a 58.80% YoY decrease (Real Estate Opinion Network, 2020). The OCC of Dossen International Group, the 14th largest hotel group in the world and the 6th largest in China, fell by 50% and its revenue dropped by 80% YoY (Wu, 2020). Likewise, China's 7th largest hotel group, the Sunmei Group, closed 2,544 hotels, on the back of an average OCC

of only 23.7% during February and a revenue loss surpassing 700 million Yuan during January and February (approximately US\$98.64 million) (Y. Ma, 2020). International hotel brands were not immune to the effects. IHG closed down 160 out of 470 hotels in China during February, and its OCC dropped by 90% to under 10% during the same period (K. Sun, 2020). Meanwhile, Hilton closed about 150 hotels in China by February 11, 2020 (Lanjing Finance, 2020). Similarly, Marriott’s RevPAR in Greater China by more than 80% and that of Accor fell by 67.7% in China (Jerry, 2020).

The hotel market started witnessing positive signs after the pandemic slowed down in mid-March. During the Qingming holiday, the tourism packages featured one-day short excursions, and there was a relatively low hotel demand during the period. However, the five-day Labour Day Holiday was the first peak season since the outbreak. According to the Ministry of Culture and Tourism, during this period, the total number of domestic tourists reached 115 million passengers, and the domestic tourism revenue reached about 47.5 billion Yuan (approximately US\$6.69 billion). According to data adopted from STR that based on 4315 sample properties including 888,957 room in China (shown in Figure 1), hotels have undertaken a devastating hit of COVID-19, especially during January to March 2020. Among seven different hotel scales, the luxury and independent hotels have suffered the most from the negative impact, whilst midscale chains and economic chains were least affected.

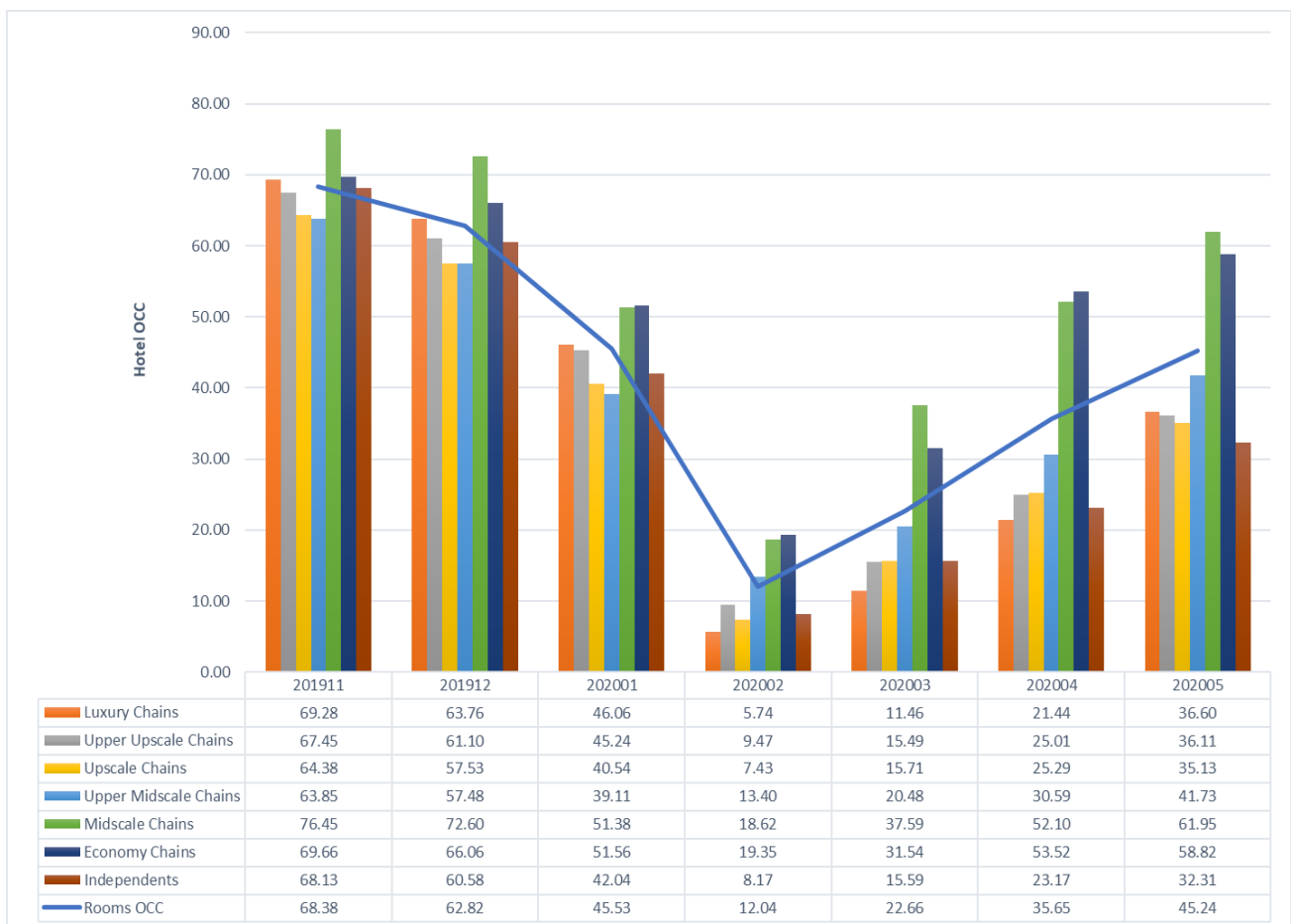


Figure 1. The occupancy of China’s hotel industry

The long-term recovery of China's hotel industry seems to be promising, yet not without challenges. Several organizations forecasted about hotel's performance in 2020. Hilton forecasted a 6–12-month recovery period and revenue losses of around US\$50 million (Lanjing Finance, 2020). Zhang et al. (2020) forecasted that the industrywide OCC in 2020 will drop to approximately 3.5%; however, if there is a rebound in the pandemic in China, then the decline could be around 5.5% (Zhang et al., 2020). As per the China Hospitality Association (2020), in the second quarter of 2020, OCC will rise gradually; the YoY revenue will decline to about 41.5%, with a revenue loss amounting to 40 billion Yuan (approximately US\$5.64 billion). The third quarter of 2020 will witness a gradual recovery of domestic business activities, a pick-up in exhibitions and business meetings, and the peak season during the summer holiday in July and August. This scenario will contain the decline in YoY revenue at around 8%, with a revenue loss of around 8 billion Yuan (approximately US\$1.13 billion U.S. dollars). In the fourth quarter, the hotel industry may embrace a compensatory consumption growth, especially during the National Day Golden Week, eventually making up for the revenue loss. Notably, business recovery will still be influenced by the global situation. Owing to the economic recession, shortened vacations, and customers' pervasive post-disaster panic, it is less likely that a retaliatory growth will occur after a slowdown in the pandemic.

3. Review of the Disaster Management Literature

The potential impacts of disastrous events on hospitality and tourism will increase in both magnitude and frequency with an increase in the hypermobility of tourism and interconnectedness of the global economy (Hall, 2010). In the context of COVID-19 and the progressively disaster-prone world, the hospitality industry must develop a framework for understanding and implementing disaster management strategies (Chan et al., 2019).

Since the beginning of the 21st century, there has been an increased sensitivity and awareness for crisis and disaster in the hospitality and tourism sector (Laws et al., 2007). In most occasions, the terms *crisis* and *disaster* have been used alternately or simultaneously without considering their distinction (Evans & Elphick, 2005; Lettieri et al., 2009). However, based on the distinction of Faulkner (2001), an organization faces a *crisis* due to internal failures, while it confronts a *disaster* due to uncontrollable external factors. In this regard, COVID-19 should be defined as a disaster; it indicates a situation where sudden devastating events, neither absolutely predictable nor avoidable, affect enterprises, challenging their operational routine, structure, and survival (Faulkner, 2001).

Theories from different disciplines shed light on the disaster management literature. The general disaster management literature is predominantly based on the engineer-oriented all-hazards theories (Lettieri et al., 2009). However, from the tourism and hospitality perspective, most disaster management studies are guided by management-oriented theories. For example, Jia et al. (2012) adopted the crisis management theory emphasizing on the proficient dissemination of information and communication between various stakeholders.

Nguyen et al. (2017) used the collaborative planning theory to investigate hotel-stakeholders' attitude, consequences, and obstacles of collaboration. Socio-psychological theories were also applied in the disaster management literature in the context of hospitality and tourism. For instance, Wang and Wu (2018), by applying the theory of planned behavior, developed an iceberg model that presents the influences of underlying beliefs and psychological factors on crisis planning and implements actions with an emphasis on cultural diversity. Furthermore, inter-disciplinary system theories were also implemented. For example, Brown et al. (2017) developed an integrated disaster management framework of economic, social, human, physical, natural, and cultural capital using the complex adaptive systems theory. Similarly, Faulkner (2001) and Ritchie (2008) used the chaos theory to obtain a more complex and comprehensive understanding of disaster management in tourism encounter. This study adopts the chaos theory to address the complex nature of the disaster, turbulence in tourism encounter, and the dynamics of changes.

Several frameworks present a holistic understanding of a disaster situation and provide suggestions for coping with the disaster at each phase (Wang & Ritchie, 2010). Drawn from broader disaster management studies and peculiarities of the tourism and hospitality industry, Faulkner (2001, p. 144) proposed a generic framework that has been widely adopted to scrutinize and develop tourism disaster management strategies. This framework sets out the following three components—*phase in disaster process*, *elements of disaster management responses*, and *principal ingredients of the disaster management strategies*. Specifically, phases in disaster process comprise pre-event, prodromal, emergency, intermediate, recovery, and resolution. The United Nations (2004) developed a framework for general disaster risk reduction; it comprises core components of disaster management such as context, risk factors, awareness, risk assessment, knowledge development, public commitment, preparedness, early warning, response, recovery, and measures. Ritchie (2008) and Sawalha et al. (2013) modified the framework of the United Nations (2004) and developed their disaster management strategies and actions for the hospitality and tourism context. Lettieri et al. (2009) identified the mitigation, preparedness, response, signaling, recovery, and learning phases. With a focus on factors and resources at the individual, organizational, and environmental levels, Wang and Ritchie (2010) developed an onion model for strategic crisis planning; it comprises *the onion system*, *the key influencing factors*, and *strategic crisis management*. Nguyen et al. (2017) explored a disaster management framework emphasizing the collaboration of public-private stakeholders. Despite the existence of the aforementioned frameworks and models, there is a growing demand for a context-specific model for COVID-19 because of the following reasons: existing frameworks are not realigned to the health-related disaster; hotels play a vital role in supporting disaster relief and resilience (Dobie et al., 2018), but hotels' CSR during disasters has been largely ignored in existing frameworks; existing frameworks fail to present the phases, principles, and strategies of disaster management in a chronological manner, which comprise a crucial instruction for actors.

Effective disaster management strategies of enterprises can minimize potential hazards and accelerate the recovery process (Ritchie & Jiang, 2019). The disaster management strategy and actions are highly related to the nature of the disaster (Hall, 2010). Therefore, we consider a similar context based on the disaster management measures taken by the hospitality and tourism industry during the severe acute respiratory syndrome (SARS) outbreak; these measures are reviewed and presented in Table 1. Drawn from the review, the process of disaster management is deployed to various phases featuring specific events, principles, and strategies. Lessons learned in the post-disaster phase are documented, analyzed, and standardized as valuable experience in order to prepare actors for the next disastrous event in the pre-disaster phase, and thereby a closed loop is formed to improve the actors' disaster-response ability continuously. Based on a review of the anti-SARS experience and the Chinese hotel industry's anti-COVID-19 experience, we develop a framework comprising phases, principles, and strategies for the anti-COVID-19 battle. The framework also considers all hotel stakeholders (e.g., investors, property owners, customers, employees, communities, and the government).

Table 1. A review of SARS related disaster management measures in hospitality and tourism

4. The COVID-19 Management Framework

A COVID-19 management framework is proposed in Figure 2. The underlying rationale of the framework hinges on the following aspects. First, it considers the whole process of disaster management. Second, it focuses on hotels (at the property and firm/brand levels) as main actors. Third, in the proposed model, the first section—phases in the anti-pandemic process—depicts major events that have affected or may affect China's hotel industry during the six pandemic phases. Fourth, the second section—principles—presents four fundamental principles that can help hotel firms focus and to guide their actions during different disastrous phases. Fifth, in line with the proposed principles, the third section—anti-pandemic strategies—presents major strategies that have been or should be implemented by the hotel industry to alleviate the catastrophic effects of COVID-19.

Phases in anti-pandemic process	Principles	Anti-pandemic strategies
<p><i>Pre-event</i></p> <ul style="list-style-type: none"> From November 17, 2019 to January 4, 2020 The first infected case of China was found in Wuhan on November 17, 2019 WHO alerted a cluster of pneumonia cases in Wuhan on January 4, 2020 Before the outbreak of COVID-19, some hotel brands generated the pandemic response mechanism based on the anti-SARS experience in 2003 	Disaster assessment	<p><i>Leadership and communication</i></p> <ul style="list-style-type: none"> Establishing a disaster management team and appoint a team leader Creating digital management and online communication systems Creating, recording and communicating disaster management strategy Committing to activation protocols
<p><i>Prodromal</i></p> <ul style="list-style-type: none"> From January 5, 2020 to January 22, 2020 When it is noticeable that the COVID-19 is imminent News about Wuhan pneumonia started to spread Hotels started to receive more cancellations and concern about the coming pandemic 		<p>↓</p>
<p><i>Emergency</i></p> <ul style="list-style-type: none"> From January 23, 2020 to mid-March 2020 Emergency actions are necessary to protect customers, employees and property Wuhan city was closed down on January 23, 2020 COVID-19 started to spread nationally. Chinese government issues a series of travel restriction policies. Cross-province and cross-city mobility were confined The hotel business has dropped to freezing point Anti-pandemic hotels have emerged to accommodate medical crew, infected patients with mild symptoms, stranded travellers, and quarantined citizens 	Ensuring the safety of employees, customers, & property	<p><i>Service provision</i></p> <ul style="list-style-type: none"> Refunding cancellations or re-schedule hotel booking Disinfecting whole service procedure Providing contactless service Adopting industry guidelines
<p><i>Intermediate</i></p> <ul style="list-style-type: none"> From mid of March to April 2020 The focal action transformed from anti-pandemic to business recovery The domestic business travel and local leisure travel has started to pick up However, just as China has started to recover, the pandemic escalated globally. The jeopardy that the coronavirus would be imported back into Chinese mainland increased Hotels near major international airports were designated by the government to quarantine inbound travellers 	Self-saving	<p><i>CSR</i></p> <ul style="list-style-type: none"> Being medical crew dormitory Being hospital extension Being quarantine station Being accommodate stranded tourists
<p><i>Long-term recovery</i></p> <ul style="list-style-type: none"> From May to the end of 2020 Self-analysis and self-healing Domestic travel restriction will be weakening, whilst international mobility will be controlled The hotel industry should focus on business travel and the local market 	<p>↓</p>	<p><i>Finance</i></p> <ul style="list-style-type: none"> Seeking financial aids from the government agencies Applying self-save strategies to ensure and monitor cash flow, reduce non-essential costs, and make promptly adjustments Encouraging mutual support with stakeholders to reduce the management and franchise fee, waive marketing and system fee, offer the discount for supplies, and provide pandemic prevention materials
<p><i>Resolution</i></p> <ul style="list-style-type: none"> 2021-2022 The domestic market will recover to normal and the international market depends on the global situation A post-COVID-19 business model should be implemented for industry activation and enhancements The major source market will follow the order of business travel -- local leisure -- short-distance sightseeing (one-day tour) and weekend leisure-mid-range sightseeing and leisure (intra-provincial tourism) -- long-distance tourism (cross-provincial domestic travel) 	Activating & revitalizing business	<p><i>Review</i></p> <ul style="list-style-type: none"> Developing disaster management SOP

Figure 2. The COVID-19 Management Framework

4.1 Phases in the Anti-Pandemic Process

This study adopted the six phases of disaster management proposed by Faulkner (2001), as it fits in the context of COVID-19 and the advancements in health-related disaster management (Henderson & Ng, 2004). In the pre-event phase, prerequisite actions are taken beforehand to evade or alleviate disastrous impacts. In the prodromal phase, we observe the warning signs of an impending disaster; this is followed by the emergency phase wherein urgent actions are taken to safeguard people and properties. Subsequently, this leads to an inflexion point; it is followed by the intermediate phase focusing on restoring normalcy to key community services and activities. The recovery phase is the continuation of the previous phase, which focuses on facilitating a series of self-reflection and self-healing measures. Finally, in the resolution phase, the normal routine is restored and the system is optimized to strengthen its disaster resistance capability. Notably, the boundaries between the six phases are blurred in practice.

In the context of COVID-19, the *pre-event phase* began on November 17, 2019 when the first infected case of China was found in Wuhan (J. Ma, 2020), and lasted until January 4, 2020. On December 31, 2019, the Wuhan Municipal Health Commission reported a cluster of cases infected by a novel coronavirus. On January 4, 2020, the WHO alerted about the outbreak of pneumonia in Wuhan (World Health Organization, 2020). Some hotel brands generated the pandemic response mechanism before the outbreak based on the anti-SARS experience in 2003 (Sun et al., 2020).

The *prodromal phase* covered the period from January 5 to January 22, 2020. Increasing evidence indicated that the outbreak was imminent. Tourists became more suspicious and started to cancel non-essential travel plans. Hotels were engaged in dealing with growing cancellations and addressing concerns about the upcoming epidemic. For instance, Dossen acknowledged that it received more than 40% room cancellation messages during the prodromal phase (Wu (2020)).

China's hotel industry entered the *emergency phase* in January 23, 2020, which lasted until the mid-March 2020. On January 23, 2020, Wuhan city was locked down, and 30 provinces and regions across the country launched public health emergency response on the next day. The Chinese government issued a series of travel restrictions to prohibit cross-province and cross-city mobility. COVID-19 started to spread nationally, infecting 81,048 people and causing 3,204 deaths until March 15, 2020. China's hotel business suffered a disastrous decline and dropped to the freezing point almost overnight.

The *intermediate phase* was from mid-March to April 2020. The pandemic was gradually brought under control as a result of China's unprecedented lockdown. Subsequently, Chinese authorities commenced easing travel restrictions. During this phase, the hotel industry started showing some early signs of performance recovery. The hotel industry shifted its focus from anti-pandemic to business restoration measures. By the end of March, the average OCC of China's hotels was to 31.8% (China Hospitality Association, 2020). Leading hotel brands gradually restored normalcy in operations; for instance, the OCC of Huazhu was restored to

60% (Jin, 2020). Both the revenue and OCC of Dossen hotels surged to 50%, and their employees' return to work rate reached 90% (D. Sun, 2020). Concerning hotels in the STR database, at the beginning of April, 88% of the hotels restored operations, and 97% luxury and upper-upscale properties were reopened (STR, 2020).

Although China started recovering from the disaster in mid-March, the pandemic had spread globally to over 150 countries by this period. The health crisis had evolved into an economic crisis. There was also an increased risk in the resurgence of COVID-19 in China due to the imported cases. The global outbreak of COVID-19 was expected to significantly impact China's hotel industry during the second half of 2020. On March 28, 2020, China closed its border to foreign citizens temporarily to avert a second wave of COVID-19. A vast majority of nations and regions also closed their borders and reduced the number of international airlines. The overnight rate of China's inbound passengers dropped dramatically, compelling upper-scale hotels targeting international business travelers to seek new markets and segments. However, the hotels' occupants included stuck travelers, Hubei citizens who could not return to their rented apartments, people who were required or volunteered to undertake self-quarantine, relatives of non-COVID 19 patients admitted in hospitals, material supply transportation teams, and government officials overseeing anti-pandemic actions (Guan, 2020).

With expectations of controlling the outbreak by April 2020 (Ho, 2020), China gradually loosened the domestic travel restrictions. However, the recovery of the inbound tourist market remains hard to predict. According to Lanjing Finance (2020), the China Tourism Research Institute projected that the market recovery will start from the second quarter of this year, with the recommencement of business travel, local leisure trips, short-distance sightseeing (one-day tour) and weekend leisure, mid-range sightseeing and leisure (intra-provincial tourism), and long-distance tourism (cross-provincial domestic travel); therefore, hotels should focus on business travelers and local demands. Further, the China Hospitality Association (2020) predicted that in the fourth quarter of 2020, the hotel industry may undergo a compensatory consumption growth, eventually making up for the revenue loss. Given the above, it is prudent to state that China's hotel industry has already entered the *long-term recovery phase*, which started in May and is expected to continue until the end of 2020.

The *resolution phase* is expected to last for more than 2 years after the termination of the pandemic. During the post-COVID-19 period, a set of prerequisite strategies will be undertaken for industry activation and enhancements. According to Zhang et al.'s (2020) prediction, although the business sector will witness a faster recovery, the spending power will remain the same. The meetings, incentives, conferences and exhibitions (MICE) sector will recover slowly, which will contribute toward the avoidance of crowd gathering. The leisure sector will embrace a short-term retaliatory consumption, after months of travel restriction, and witness a rise wellness and technology trends (Zhang et al., 2020).

4.2 Principles

Hotel firms must set forth appropriate principles corresponding to different phases of disaster management (Chan et al., 2019; Faulkner, 2001; Ritchie & Jiang, 2019). This study proposes four principles for the different phases of the pandemic. In the pre-event and prodromal phases, it would be crucial to evaluate the potentially devastating effects of the pandemic and their probability of occurrence (Faulkner, 2001). Based on the disaster assessment, hotel firms can better prepare for different scenarios and adjust the anti-pandemic strategies promptly and effectively. In the emergency phase, the hotel firms must ensure the safety of employees, customers, and property. Many hotel brands actively participated in the anti-pandemic battle to accommodate medical crew, infected patients with mild symptoms, stranded travelers, and quarantined citizens. In the intermediate phase, when the tension and fear of the pandemic lessens to some extent, the hotel firms must switch from an anti-pandemic to self-save mode to cope with the ensuing economic crisis. During the long-term recovery and resolution phase, hotel firms must focus on activating and revitalizing their business. Actions taken during the long-term recovery and resolution phase will increase resource investment and optimize operations in the affected area, and thereby lead to improvement over the pre-pandemic situations.

4.3 Anti-pandemic Strategies

The uncertainty brought by COVID-19 has led to fear and severe volatility in the global hotel industry. In this regard, the hotel consumption and anti-pandemic strategies undertaken by China's hotel industry can help the hotel industry in other parts of the world to better prepare for different disaster scenarios and prepare an appropriate action (Valle, 2020). Major anti-pandemic strategies adopted by China's hotel industry are discussed in detail in the following subsections.

4.3.1 Leadership and Communication Strategies

As in all disaster situations, the first step involves the formation of an efficient and responsible disaster management team and the appointment of a team leader (Faulkner, 2001). Several hotel groups, including Dossen, BTG, IHG, Huazhu, Jinjiang, Wanda, and New Century, established a disaster management team in the prodromal or emergency phase, in order to undertake leadership, command, and action. Concerning communication, the COVID-19 scenario calls for innovative communication that can facilitate smooth and responsive exchange of information and decision-making (Moorhouse, 2020). In China, mobile applications, such as Enterprise WeChat, DingTalk, Tencent conference, Zoom, Feishu, and WeLink, have gained popularity for office automation, remote conference, and online training (Juzhang Data, 2020; Li et al., 2020). Using a combination of online office technologies, tools, and platforms, hotel brands have established an effective remote command and management system to deploy employees and arrange meetings.

4.3.2 Human Resource Strategies

During disasters, high performance employees are considered valuable assets for the firm; these employees contribute toward firms' performance recovery once the disaster is pacified. Therefore, hotel firms should strive to retain employees during the pandemic. For hotels located in the center of the pandemic and involved in the anti-pandemic battle, it is critical to ensure the physical health, psychological well-being, position and income of the front-line staff. Hotels at the periphery of the pandemic must reduce non-essential labor costs flexibly by socializing service production, sharing labor with the related service industry, adopting intelligent devices to replace manual labor, and laying off laborers with low-performance efficiency and poor working attitude. Some hotels share staff with industries facing a labor shortage, such as food delivery organizations or mask manufacturers. Hotels also employ outsourced labor for some service procedures (e.g., food delivery and laundry) to enhance cost-efficiency. There is an emerging trend to retrain staff to multitask in order to improve work flexibility and optimize human resource allocation. Besides, hotels can also take advantage of the low business season to train staff online, support staff development, encourage employees to take annual leave, and reduce workdays and hours (McKercher, 2020).

4.3.3 Service Provision Strategies

Restoring customer confidence is critical to tide through a crisis. In this regard, it is interesting to note that several hotel brands initiated the free cancellation service (until end of April) and re-booking assistance, extended the loyalty program membership, and increased the benefits of membership to reassure customers. For instance, domestic hotel companies, such as Jinjiang, Huazhu, New Century, and the Atour Group, extended their loyalty programs' membership by 3 months; several international firms, including Hilton, Hyatt, and Accor, extended such membership programs even up to an year (Sun et al., 2020).

Hotel brands have taken strict hygiene and sanitary measures to secure their customers' accommodation environments; these measures include conducting complete disinfection; controlling food hygiene; distributing masks; offering online medical consultation; detecting the health of customers and employees; and shutting down laundry rooms, gyms, and other public areas and facilities. For instance, BTG Homeinns Hotels upgraded its worry-free service to include 24 special cleaning standards and 59 anti-pandemic cleaning measures (D. Sun, 2020). Tujia Homestay promoted a standardized disinfection procedure covering 12 contact points (Luo, 2020). Hotels must explain about their protective measures to the customer, and thus restore customers' confidence (Valle, 2020). A good example is Huazhu's Hanting brand; it not only launched 130 post-epidemic cleaning operations in its 2,560 hotels but also publicly invited customers to supervise the entire process of deep cleaning on-site and broadcasted the procedure online to reassure customers of the hotel's safety (Meadin, 2020).

Hotels have also been implementing technological solutions to provide contactless service and assure customers of service safety (All-China Federation of Industry and Commerce, 2020). During the pandemic, hotel groups (such as Dossen, Huazhu, and New

Century) increased the implementation of intelligent contactless services, including self-check-in, remote check-in, face-scanning, voice control of room service, robotic room service, and the zero-second check-out. These services aimed to avoid human contacts and minimize their customers' stay in public areas, and thereby contributed toward reducing the risk of COVID-19 transmission and cross-infection (Guan, 2020; Yunji Technology, 2020).

Hotels also collaborated with the online travel agencies (OTAs) to launch accommodation projects that guaranteed hygiene. By April 16, 2020, over 100,000 hotels from 351 cities had joined the 'Rework and Stay Safe' project initiated by Qunar.com. Of these hotels, there has been an expansion of contactless service hotels equipped with self-check-in machines and robotic room services. Alibaba Business Travel also launched the worry-free accommodation service for the first batch of business travelers from reinstatement enterprises in more than 400 cities (Guan, 2020).

Hotel industry associations also issued guidelines to monitor pandemic prevention. China Hospitality Association and HVS released a compilation of cases on the preventive measures and operation of hotels in the Asia-Pacific region. This compilation serves as a reference for hotel practitioners on measures taken by hotels during the SARS outbreak. China Hospitality Association, National Green Hotel Working Committee, and Meituan published the *convention on pandemic prevention in China's hotel rooms* to instruct hotel practitioners. Besides, the China Hospitality Association, Alibaba, and Cornell China established guidelines for food and beverage merchants during COVID-19; these guidelines directed the anti-epidemic work of catering practitioners (Sun et al., 2020).

4.4.4 CSR Strategies

During the peak pandemic period, the rapid increase in the number of infected cases led to a shortage of hospital beds. There was a need to find hospital extensions to quarantine and treat infected patients. Additionally, the Wuhan government had to arrange accommodation for the COVID-19 medical staff deputed in the province as well as the construction workers involved in the construction of COVID-19 hospitals. At this time, the China's hotel industry displayed solidarity with people and carried out social responsibilities.

By providing existing infrastructure and services, many hotels voluntarily participated in providing accommodation and meals to the medical staff, construction workers, and patients. In the first quarter of 2020, government agencies designated 610 Huazhu hotels (a total of two million room nights) as medical crew dormitories and quarantine stations (Elena, 2020). In Hubei, more than 180 Dossen hotels were voluntarily designated as anti-pandemic hotels, which hosted more than 20,000 person-times of medical staff from 68 hospitals. On January 27, 2020, Dossen started encouraging franchised hotels in China to restore operations and provide free accommodation, meals, and transportation for the front-line medical staff (Wu, 2020). Jinjiang's midscale brand Vienna also provided 2,353 free rooms to the medical staff (Chang, 2020).

Hotels also worked closely with authorities to accommodate stranded tourists from Hubei province and serve as quarantine stations. Moreover, by the end of March, some non-locals who returned to the province to resume work were quarantined for 14 days. Several hotels in major cities were designated as quarantine stations for the returning non-local workforce.

Meanwhile, with the global spread of COVID-19, inbound travelers were also required to undergo the same quarantine process. To minimize the spread of disease, hotels nearby major international airports served as quarantine stations for inbound travelers.

4.4.5 Finance Strategies

Hotel firms should focus on policies issued by related government agencies and seek financial aids from authorities (China Hospitality Association, 2020; McKercher, 2020; Sun et al., 2020). Various government agencies issued supporting policies to avoid layoffs and firm bankruptcies by supporting their cash flows in the short-term and enabling them to repay their long-term debts. The supporting policies predominantly include labor cost reduction policies (flexible employment policy, returning unemployment insurance, deferring social security payments, alleviating the burden of housing fund, and subsidizing staff training), tax deduction or deferral policies (reducing or exempting land use or real estate tax, postponing tax payment, simplifying tax payment and refund procedures, and deducting tax for donation expenditure), rent reduction policies, funding support policies (low-cost financial support, various financial services, green channels, and fast and easy access to loan), and energy cost reduction and exemption policies (China Hospitality Association, 2020). Besides, the local government also provided subsidies to hotels that served as hospital extensions, medical crew dormitories, and quarantine stations.

Hotels must also apply self-save strategies to revitalize the cash flow, reduce non-essential costs, enhance operating capabilities, monitor cash flow predictions, and make dynamic adjustments promptly based on the ever-changing pandemic situation. Based on existing facilities and services, many hotels developed new functionalities and customer values such as hospital outplacement and quarantine station. They must also employ efficient methods and systems to reduce operating costs, such as by strategically closing, partially closing, or reducing the number of properties and facilities, postponing non-essential building and system maintenance, minimizing fixed costs, and cutting non-essential services. Hotels must also engage customers online and develop sales strategies such as advance sale, package sale (combining airfare, accommodation, local tours, and food and beverage), and flexible daily pricing strategies, based on the current situation.

Furthermore, as a community with a shared purpose, hotel brands must collaborate with their parent firms to overcome financial hurdles. Many international and domestic hotel chains reduced management and franchise fees, waived marketing and system fees, and offered discounted supplies and pandemic prevention materials (Zhang et al., 2020). In addition, some hotel brands, such as Dossen, Huazhu, and Vienna, provided health insurance to franchisees and a substantial loan amount for market renovation and establishing new hotels (Chang, 2020; Jin, 2020; Wu, 2020). OTA giant Ctrip also recommended OTAs to collaborate toward reducing hotel supplier commissions and advertisement fees, exempting management fees for 3 months, and providing loan service to individual hotels (TravelDaily, 2020).

4.4.6 Disaster Management Standard Operating Procedure

Hotels must establish a responsive and efficient standard operating procedure (SOP) to enhance the effectiveness of disaster management capabilities in addressing disasters, including natural disasters and emergencies (e.g., epidemics, explosions, fires, violence, robbery, critical illness, and death). Hotels with an experience in a specific category of disaster will obtain a better understanding of the disaster and become well-prepared to cope with a similar situation in the future. Hotels should organize and maintain a team of expert consultants to respond to the pandemic, establish an expert consultation mechanism, and compile and update the guidelines for the hotel's response to the pandemic. The insurance companies who have a long-standing cooperation with the hotel industry should optimize products and services to adjust to the pandemic situation and help hotels hedge against possible losses (Sun et al., 2020).

5. The Post-COVID-19 Hotel Industry in China

COVID-19 will significantly and permanently affect several major aspects discussed in the following subsections. Even before the pandemic, the hotel industry was facing fundamental challenges. Hotels faced increasing pressure to become more customer-centric, digital, agile, and sustainable (Valle, 2020). As a blessing in disguise, the health and economic impacts of the pandemic significantly changed the supply-demand balance of the hotel industry, requiring hotel firms to re-evaluate the current business model and set out a new agenda to enhance competitiveness. In this way, disaster can be a trigger or catalyst for a robust and more adaptable hotel industry (Faulkner, 2001). Figure 3 shows the four aspects and their connections and logical relationships.

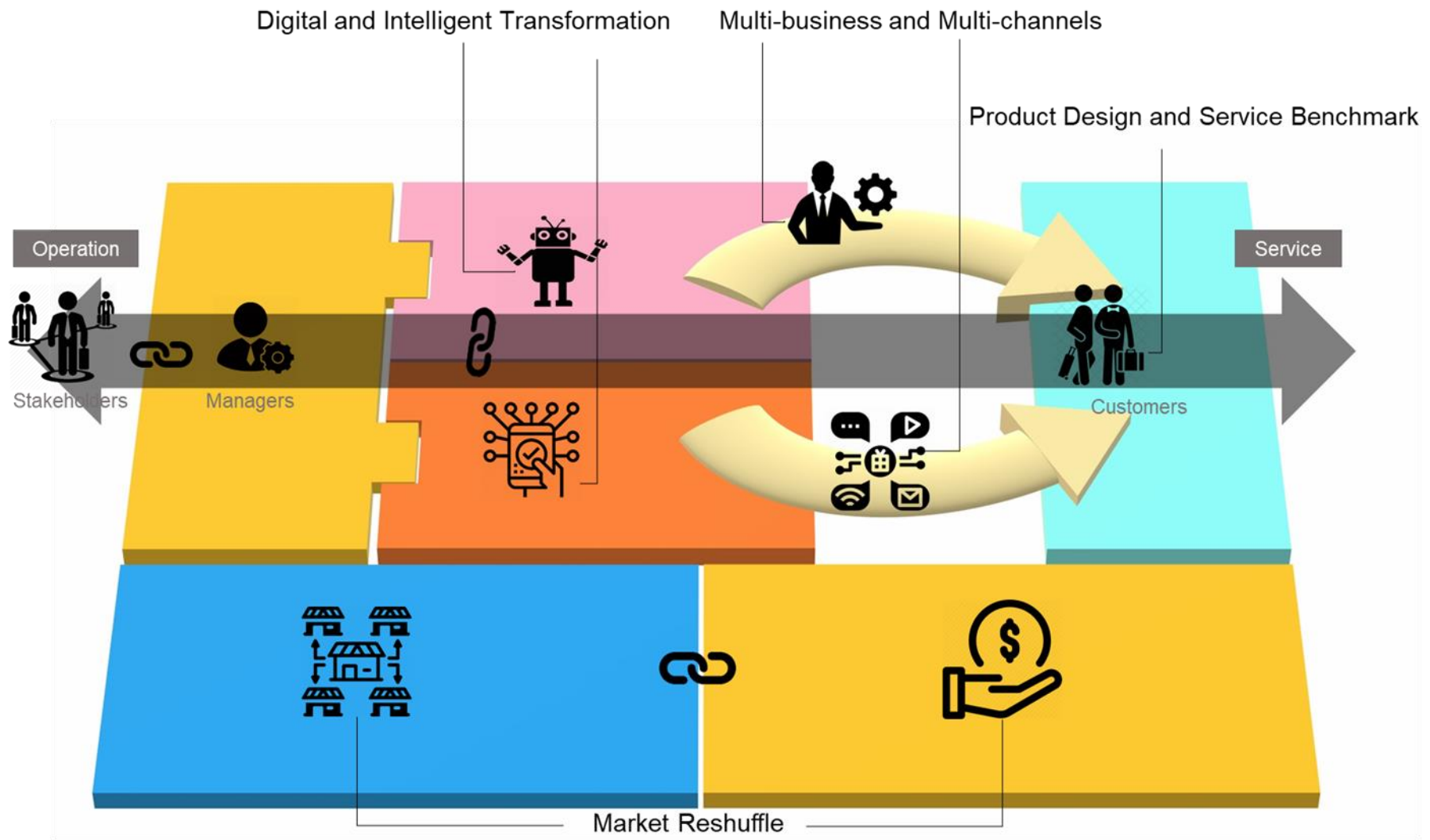


Figure 3. A Post-COVID-19 Business Model

5.1 Multi-Business and Multi-Channel Platforms

The traditional hotel business model focusing on catering and accommodation has been severely challenged by COVID-19, which has driven proactive companies to restructure and develop a more diversified business scope and distribution channels. Some of the changes will last through the post-pandemic era. Therefore, the hotel industry must renew services by deconstructing and reconstructing existing products, marketing strategy, distribution channels, delivery methods, and consumption points (Gallen, 2020). The hotel industry will embrace reforms facilitating multi-business and multi-channel platforms. For example, hotels can maximize their space and utilize it for accommodation, catering, retail, and public activities as well as for the off-line demonstration of online shopping. Wanda Hotels and Resorts uses its public space to demonstrate consumption scenarios and exhibits commodity (Chen, 2020). Atour generates profits through commodity displays and e-commerce, in addition to room income, and thus e-commerce income has become an important source of Atour's income (SocialBeta, 2020). Many IGH hotels launched a food delivery service (K. Sun, 2020). Jinling Hotels and Resorts extended its business scope and broadened the operating income structure by setting up a food retail platform, which integrates the commercial scale production of classic dishes, an online sales system, and the cold chain logistics system. Jinling received an order from the local government to provide food to its non-local COVID-19 medical crew; the hotel produced 10,000 pork bales and 3,000 brined ducks within 48 hours and delivered the products on time (Hu et al., 2020).

Hotels should also endeavor to update channels to contact, attract, and sell to customers (Valle, 2020). China's hotels depend heavily on OTAs as their primary e-commerce channel; these OTAs are based on the public domain—a huge customer base is shared by various OTA platforms through bidding. In the past decade, all businesses, including hotel OTAs, had benefited from the rapidly increasing number of users on the public domain. In recent years, the saturation of users in the public domain increased the costs of acquiring user growth, which, in turn, increased the expenses of the OTA platform. In 2019, the private domain concept changed hotels' e-commerce ecosystem, allowing direct contact with the user pools attached to the brand/hotel. The growth of private domain has been promoted by the emerging social media channels in China, such as the WeChat group, online flagship stores, vlog, and live-streaming. Private domain forms a close loop where users can be converted into consumers at lower costs, and these converted users will also share a stronger bond with the brand. In China, the emerging mobile applications for hotel marketing via private domain include Paipai (developed by Ctrip), Dianping (developed by Meituan), Xiaohongshu, Tiktok, and WeChat public account (Shao, 2020).

Triggered by the pandemic, in the Chinese mainland, the live streaming sale has become one of the most popular marketing and sales channels across industries. Live streaming sales have achieved phenomenal success (Ni & Wang, 2020). Hotels should seize the opportunity to use live streaming to display products, interact with customers, and promote sales. For instance, Fliggy made more than 7,500 live broadcasts in over 30 countries and regions and

attracted 30 million users during February and March (Xu, 2020). Liang Jianzhang, the Chairman of the Board of Ctrip, turned himself into a key opinion leader (KOL) and conducted seven live broadcasts since March, which drove a total of 200 million Yuan (approximately US\$28.18 billion) gross merchandise volume (Jenny, 2020). In April, through live streaming, 3,000 advanced sales packages of a Shanghai hotel were sold in half an hour; since then, the hotel has sold nearly 10,000 packages (Ministry of Culture and Tourism of the People's Republic of China, 2020).

5.2 Product Design and Investment Preference

China's hotel industry has evolved rapidly in the past 40 years. While most hotels were poorly managed and state-owned independent properties in the 1980s, a diverse and thriving brand landscape emerged in 2010s. These successful brands emerged not only the upscale sector but also in the economy and the upper-midscale ones. Recently, personalized, innovative, and non-standard hotel brands, such as Muji and Atour, have emerged as a trend. During the pandemic, some hotels exhibited their high competitiveness and good financial performance through excellent product design and investment preference. For instance, the 108-room upscale Shilifangfei Hotel (a member of Huazhu's VUE brand) achieved its key performance indicators for the entire financial year 2020 by the first quarter; this success was attributed to its attractive brand storytelling, keen market positioning, space utilization, highly educated customer community, rapid innovation, and iterative operational capabilities (Sammi, 2020).

COVID-19 brought about enduring changes in customer preferences and consumption behaviors. Hence, hotels should identify customer needs and develop state-of-the-art products. For example, customers' concern for hygiene, health, and sustainability will continue during the post-COVID-19 era (Valle, 2020). New hotel products should allow customers to maintain a healthy and balanced lifestyle, exercise at will, work effectively, ensure social distancing, and reduce close contact. Thus, functional private space, such as a private office, fitness center, and recreation space and facilities, plays an important role within a hotel room (K. Sun, 2020). Homestays are also suggested to launch accommodation products with abundant private space, such as a balcony, private kitchen, and a washing room to reduce unnecessary interpersonal contact (Luo, 2020).

Owing to the epidemic's severe damage, future hotel investment and asset renewal will be more concerned with the return on investment and control of cash flow, and thus strive to maximize the value of a property and operating value (Lanqing Finance, 2020). China's rapid development in the past 40 years has led to an unusual growth in the number of luxury hotels. Having experienced significant losses during the pandemic, hotel investors will become more rational and return-driven in regard to their future projects. The preference of investors will change from *big and comprehensive* to *small and exquisite* (Qu, 2020), and the return-optimization formula for hotels will focus on maximizing revenue per square meter per minute (Gallen, 2020).

5.3 Digital and Intelligent Transformation

COVID-19 pandemic has enhanced the need for intelligent services in both the supply and demand sides of the industry. Changes in consumer demand are the fundamental drivers of digital transformation. In the current scenario, customers have developed a renewed preference for contactless service supported by the digital platform and intelligent technology; these services are expected to continue after the pandemic. Several large-scale chain brands have hastened the digital transformation to sustain competitiveness in the post-pandemic world (China Hospitality Association, 2020). Hotels' investment in digital customer relationship management has endowed customers service with configurability and traceability; this is based on which hotels can predict the individual preference, provide customized services, improve membership conversion, and increase customer loyalty via various engagement schemes. Through big data and revenue management, hotels can analyze the composition, demand, travel distance of the target consumer, and carry out precision marketing.

The digital and intelligent tools will eliminate human error, increase service efficiency, stabilize service quality, and thus enhance customer satisfaction and improve hotel performance in the increasingly competitive business environment. In China, several technology companies (e.g., Puietel, Resthour, Xiezhu, and Yunji) with independent innovation capabilities have emerged to provide technical support to hotels. Industry giants such as Ctrip, Alibaba, Xiaomi, Baidu, and iFlytek have also shown high interest in developing artificial intelligence (AI) applications for hotels. For example, FlyZoo Hotel, which is developed and operated by Alibaba, is widely recognized as the leader of smart hotels in China. Based on the Internet of Things, FlyZoo adopted intelligent technologies such as smart control (e.g., access, lights, speakers, curtain, air conditioner, and TV), self-check-in and checkout, room service and food delivery robots, kiosks, face recognition, voice applications, and mobile payment. The digital, intelligent, and contactless service will reduce interpersonal contact and the risk of cross-infection, and thus boost customer's confidence in the service environment.

The implementation of digital and intelligent technologies can also improve a hotel's operational efficiency and achieve significant cost reductions. The pandemic has also accelerated the ad hoc implementation of video conferencing, cloud collaboration, and teleworking. In the post-COVID-19 era, hotels will be more agile and effective in attracting Generation-Y and Z customers and employees if they continue to implement digital and smart solutions (Valle, 2020). Given that the hotel industry is a labor-intensive industry relying on standardized manual inputs and operations, the implementation of digital and intelligent technologies, specifically process automation, will automate a considerable proportion of repetitive administrative work and replace human labor. The digital and intelligent tools ensure uninterrupted hotel operations on the business side and service provision on the customer side. Hotel firms require an integrated management-marketing-service digitalization plan and extend the loop from marketing to operation management. Hotels can develop a

digitalized operation system that connects the management scenarios with service scenarios throughout the lifecycle of a hotel.

5.4 Market Reshuffle

The pandemic will also significantly influence the market composition of China's hotel industry in the post-pandemic world. After the revitalization of the hotel business, rampant hotel brand expansion may take assume a different pattern (Dassen, 2020). China's hotel industry comprises of almost 80% independent hotels (about 920,000) and only approximately 20% of the hotels are operated by hotel chain brands (OYO, 2019). Owing to the pandemic, individual hotels are likely to suffer more severely than the other actors; this is because the former are intrinsically susceptible to disaster (Zhou, 2020). They suffer from disorganized operation and management; unstable service quality; poor hygiene condition; high turnover rate; weak customer loyalty; unprofessional cost control; and even unqualified fire, sanitation and public security (China Hospitality Association, 2020; Djeebet, 2020; Jin, 2020; K. Sun, 2020; Wu, 2020; Zhou, 2020). However, during the pandemic, the branded hotel chains emerged more competitive due to their advantages in the business model, refined SOP, disaster management mechanism, and proficient operation.

The pandemic promoted the reshuffling of the small- and medium-sized hotels, and it is expected to push them to upgrade to high quality branded hotel chains. The rebranding of individual hotels will provide the hotel industry a major opportunity to shift from the new property market to the stock property market (Lanjing Finance, 2020). China's hotel industry will see an increase in the ratio of branded properties and a focus on leading hotel brands. The pandemic helped hotel firms visualize this opportunity to promote the brands that can integrate individual hotels with the strong sales and marketing system of the hotel brands while maintaining the unique features of individual hotels, such as OYO, VOCO (launched by IHG), H Hotel (Huazhu), AAroom (Sunmei), Qingzhu (Meituan), OYU (Yilong) (Zhou, 2020). Hotel firms should seize the opportunity to increase market share, while individual hotels can actively cooperate with major firms to achieve transformation and upgradation.

6. Conclusions

In addition to summarizing the overall impacts of COVID-19 on China's hotel industry, the importance and originality of this study are that it develops a COVID-19 management framework comprising anti-pandemic phases, principles, strategies. It also offers original insights into major trends of China's hotel industry during the post-pandemic era, including the emergence of multi-business and multi-channels, product design and investment preference, digital and intelligent transformation, and market reshuffle.

Based on the disaster management literature and the experience and trends of China's hotel industry, the study aims to enable hotel practitioners reeling under the pandemic to live better for today and plan well for tomorrow. This study can inspire hotel firms globally to understand the disaster evolution scenarios, adopt effective anti-pandemic strategies, and

strive for industry activation and revitalization. The COVID-19 management framework can be adopted for managing health-related disasters in a broader context, which enhances the generalizability of this study. Although China's hotel industry was the first receiver of the pandemic's ramifications, it took timely measures to cushion the economic loss and secure its employees and customers. The industry undertook social responsibilities and actively participated in the anti-pandemic battle during a comprehensive and elongated lockdown. After witnessing positive signs, the industry adopted a series of innovative measures to revitalize performance. The effect of COVID-19 remains uncertain as the economic ramifications in the global hotel industry are existentially threatening. Against this background, the experience of China's hotel industry will provide systematic, albeit limited, solutions to hotel firms abroad who are suffering from the health and economic crisis. Besides, the pandemic will fundamentally change the economic environment of China's hotel industry. In this regard, the study provides scenarios and suggestions in the post-COVID-19 hotel industry context in China, which will shed light on industry transformation and upgradation.

The limitations of this study mainly lie in the lack of empirical exploration and the unpredictability of the pandemic. Hence, future studies must use more accurate prediction models and methods. Surveys about customers' post-pandemic travel willingness and consumption preference will help academics and practitioners to foresee the rehabilitated service ecosystem. There can be a deterioration in the performance of hotels serving as quarantine stations, hospital extensions, and medical crew dormitories. This decline may occur when occupants have negative connotations with the place due to their unpleasant memories about the virus, horror, suffering, and death. The performance may also boost as a result of its corporate social responsibility activities during the time. Longitudinal studies can be conducted to explore their performance and examine whether it could have been improved with better marketing strategies. The future studies can empirically investigate the influences of technology adoption on customers' experience, engagement, satisfaction, loyalty, and the hotel brands' and properties' performances during the post-pandemic era. Additionally, it would be worthwhile to investigate the benefits of live streaming marketing. The future research can also analyze the post-pandemic hotel franchising, merging, and acquisition strategies.

References

- All-China Federation of Industry and Commerce. (2020). Towards diversification: The pandemic situation forces the hotel industry to innovate and transform. Retrieved from http://www.acfic.org.cn/fgdt1/zjgd/202003/t20200320_161020.html
- Brown, N., Rovins, J., Feldmann-Jensen, S., Orchiston, C., et al. (2017). Exploring disaster resilience within the hotel sector: A systematic review of literature. *International Journal of Disaster Risk Reduction*, 22, 362-370.
- Chan, C., Nozu, K., & Cheung, T. (2019). Tourism and natural disaster management process: perception of tourism stakeholders in the case of Kumamoto earthquake in Japan. *Current Issues in Tourism*, 1-22.
- Chang, K. (2020). *After the pandemic, the high-quality development path of Chinese accommodation brands*. Symposium conducted at the Rejuvenation · Rebirth | 2020 China Cultural Tourism and Hospitality Industry Digital Summit, Online. Retrieved from <http://www.tripvivid.com/articles/26595>
- Chen, M. (2020). Is there any investment opportunity in the severely damaged Chinese hotel industry? Retrieved from <http://www.tripvivid.com/articles/26600>
- China Hospitality Association. (2020). *The Impact of COVID-19 on China's lodging Industry*. Retrieved from http://www.xinhuanet.com/food/2020-03/02/c_1125652997.htm
- China Tourism Research Institute. (2020). *Research on the 2020 Qingming Holiday Tourism Market*. Retrieved from <https://m.chinanews.com/wap/detail/zw/cj/2020/04-07/9149583.shtml>
- Cooper, M. (2006). Japanese tourism and the SARS epidemic of 2003. *Journal of Travel & Tourism Marketing*, 19(2-3), 117-131.
- Dassen, J. (2020). How to manage the COVID-19 impact: Tips and recommendations from 10 Hotel Industry Experts (Part 3). Retrieved from <https://www.hospitalitynet.org/news/4098055.html>
- Djeebet, H. (2020). What is the Impact of COVID-19 on the Global Hospitality Industry? Retrieved from <https://www.hospitalitynet.org/opinion/4098062.html>
- Dobie, S., Schneider, J., Kesgin, M., & Lagiewski, R. (2018). Hotels as critical hubs for destination disaster resilience: An analysis of hotel corporations' CSR activities supporting disaster relief and resilience. *Infrastructures*, 3(4), 46.
- Elena. (2020). The Q1 RevPAR of Huazhu hotel dropped by more than half, and the RevPAR of Deutsche Hotel dropped by 21%. Retrieved from <http://traveldaily.net/article/137334>
- Evans, N., & Elphick, S. (2005). Models of crisis management: An evaluation of their value for strategic planning in the international travel industry. *International Journal of Tourism Research*, 7(3), 135-150.
- Faulkner, B. (2001). Towards a framework for tourism disaster management. *Tourism Management*, 22(2), 135-147.

- Gallen, S. (2020). *The response of tourism businesses vis-à-vis the economic ramifications of SARS-CoV-2*. Aiest. Retrieved from <https://www.aiest.org/news/>
- Guan, Q. (2020). 90% of the hotels are back in business. Who is staying in hotels now? Retrieved from <https://www.meadin.com/jd/211475.html>
- Hall, M. (2010). Crisis events in tourism: Subjects of crisis in tourism. *Current Issues in Tourism*, 13(5), 401-417.
- Henderson, J., & Ng, A. (2004). Responding to crisis: Severe acute respiratory syndrome (SARS) and hotels in Singapore. *International Journal of Tourism Research*, 6(6), 411-419.
- Ho, M. (2020). Covid-19 could be under control by end of April, China's top respiratory expert says. Retrieved from <https://www.scmp.com/news/china/society/article/3078171/covid-19-could-be-under-control-end-april-chinas-top-respiratory>
- Hu, S., Hu, J., Chen, J., & Zhu, M. (2020). In the post-pandemic era, the 'digital viability' of the hotel industry. Retrieved from <http://www.tripvid.com/activities/84>
- Huang, C. (2020). Coronavirus: For China, the economic pain has only just begun. Retrieved from <https://www.scmp.com/week-asia/opinion/article/3076175/coronavirus-china-economic-pain-has-only-just-begun>
- Hung, K., Mark, C., Yeung, M., Chan, E., et al. (2018). The role of the hotel industry in the response to emerging epidemics: a case study of SARS in 2003 and H1N1 swine flu in 2009 in Hong Kong. *Globalization and health*, 14(1), 117.
- Jenny. (2020). Repressed for four months, Beijing users' explosive 'hoarding hotels' rose 650%. Retrieved from <http://www.lvjie.com.cn/distribution/2020/0429/17541.html>
- Jerry. (2020). The IHG Greater China picked up, the global OCC is between 20% to 26%. Retrieved from <https://www.traveldaily.cn/article/137407>
- Jia, Z., Shi, Y., Jia, Y., & Li, D. (2012). A framework of knowledge management systems for tourism crisis management. *Procedia Engineering*, 29, 138-143.
- Jin, H. (2020). *The anti-epidemic journey of China's hospitality industry*. Symposium conducted at the Rejuvenation · Rebirth | 2020 China Cultural Tourism and Hospitality Industry Digital Summit, Online. Retrieved from <http://www.tripvid.com/articles/26590>
- Johnson, P., Zhen, L., Tolomiczenko, G., & Gellatly, J. (2008). SARS: Lessons in strategic planning for hoteliers and destination marketers. *International Journal of Contemporary Hospitality Management*, 20(3), 332-346.
- Juzhang Data. (2020). The 10 most downloaded remote office apps in China, 300 million people are using them. Retrieved from <https://baijiahao.baidu.com/s?id=1664224175186899721&wfr=spider&for=pc>
- Kim, S., Chun, H., & Lee, H. (2005). The effects of SARS on the Korean hotel industry and measures to overcome the crisis: A case study of six Korean five-star hotels. *Asia Pacific Journal of Tourism Research*, 10(4), 369-377.

- Lanjing Finance. (2020). Fosun and China lodging's hotels accelerate their opening, the hotel industry welcomes the spring. Retrieved from <https://www.lanjinger.com/d/134550>
- Laws, E., Prideaux, B., & Chon, K. (2007). *Crisis management in tourism*. Cambridge: CABI.
- Lettieri, E., Masella, C., & Radaelli, G. (2009). Disaster management: Findings from a systematic review. *Disaster Prevention and Management*, 117-136.
- Leung, P., & Lam, T. (2004). Crisis management during the SARS threat: A case study of the metropole hotel in Hong Kong. *Journal of Human Resources in Hospitality & Tourism*, 3(1), 47-57.
- Li, K., Lin, H., & Li, J. (2020). Five major online office apps hard core PK. Retrieved from <https://m.21jingji.com/article/20200321/herald/adcf277c3347a0b5682089eaec5f9b9.html>
- Lo, A., Cheung, C., & Law, R. (2006). The survival of hotels during disaster: A case study of Hong Kong in 2003. *Asia Pacific Journal of Tourism Research*, 11(1), 65-80.
- Luo, J. (2020). *The post-pandemic trend and opportunities of non-standard accommodation*. Symposium conducted at the Rejuvenation · Rebirth | 2020 China Cultural Tourism and Hospitality Industry Digital Summit, Online. Retrieved from <http://www.tripvivid.com/articles/26596>
- Ma, J. (2020). Coronavirus: China's first confirmed Covid-19 case traced back to November 17. Retrieved from <https://www.scmp.com/news/china/society/article/3074991/coronavirus-chinas-first-confirmed-covid-19-case-traced-back>
- Ma, Y. (2020). *The epidemic accelerated transformation of the hotel industry*. Symposium conducted at the Rejuvenation · Rebirth | 2020 China Cultural Tourism and Hospitality Industry Digital Summit, Online. Retrieved from <http://www.tripvivid.com/articles/26592>
- McKercher, B. (2020). *A tourism crisis recovery checklist*. TRINET. Retrieved from <https://ttra.com/wp-content/uploads/2020/04/TRINET-COVID-19-Recovery.pdf>
- Meadin. (2020). 2560 Hanting stores adopted 130 'deep cleaning standards' to help hotel travel recovery. Retrieved from <https://www.meadin.com/jd/213592.html>
- Ministry of Culture and Tourism of the People's Republic of China. (2020). Live-streaming helps hotel market pick up. Retrieved from https://www.mct.gov.cn/whzx/qgwhxxlb/zj/202004/t20200409_852402.htm
- Moorhouse, B. L. (2020). Adaptations to a face-to-face initial teacher education course 'forced' online due to the COVID-19 pandemic. *Journal of Education for Teaching*, 1-3.
- Nguyen, D., Imamura, F., & Iuchi, K. (2017). Public-private collaboration for disaster risk management: A case study of hotels in Matsushima, Japan. *Tourism Management*, 61, 129-140.
- Ni, V., & Wang, Y. (2020). Coronavirus: Can live-streaming save China's economy? Retrieved from <https://www.bbc.com/news/business-52449498>

- OYO. (2019). Big data report of China's individual hotel owners. Retrieved from <https://caijing.chinadaily.com.cn/a/201911/27/WS5ddd15da31099ab995ee384.html>
- Qu, X. (2020). Qiu You: After the pandemic, investors will prefer 'small and refined' mid-range hotels. Retrieved from <http://www.bjnews.com.cn/feature/2020/04/22/719693.html>
- Real Estate Opinion Network. (2020). Affected by the pandemic, the first quarter revenue of BTG Hotel decreased by 58.8% YoY to 801 million Yuan. Retrieved from <https://www.meadin.com/jd/213505.html>
- Ritchie, B. (2008). Tourism disaster planning and management: From response and recovery to reduction and readiness. *Current Issues in Tourism*, 11(4), 315-348.
- Ritchie, B. W., & Jiang, Y. (2019). A review of research on tourism risk, crisis and disaster management: Launching the annals of tourism research curated collection on tourism risk, crisis and disaster management. *Annals of Tourism Research*, 79, 102812.
- Sammi. (2020). Why Shilifengfei can head wind in the magic 2020? Retrieved from <https://www.meadin.com/jd/213587.html>
- Sawalha, I., Jraisat, L., & Al-Qudah, K. (2013). Crisis and disaster management in Jordanian hotels: Practices and cultural considerations. *Disaster Prevention and Management: An International Journal*.
- Shao, D. (2020). *The hotel operation during the pandemic: Challenges and opportunities*. Duocaitou and Donglixuetang. Retrieved from <https://www.shangyexinzhi.com/article/517816.html>
- SocialBeta. (2020). Atour tells you: how to seize the new middle class with the fourth space scene. Retrieved from <https://socialbeta.com/t/opinion-atour-hotel-marketing-study-2019-05>
- STR. (2020). *Chinese mainland hotel industry shows early signs of performance recovery*. Retrieved from <https://str.com/press-release/str-mainland-china-hotel-industry-shows-early-signs-performance-recovery>
- Sun, D. (2020). *Revitalization and future of the hospitality industry*. Symposium conducted at the Rejuvenation · Rebirth | 2020 China Cultural Tourism and Hospitality Industry Digital Summit, Online. Retrieved from https://www.sohu.com/a/390913127_691563
- Sun, K. (2020). *The anti-epidemic and post-epidemic international group's hotel development*. Paper presented at the Rejuvenation · Rebirth | 2020 China Cultural Tourism and Hospitality Industry Digital Summit, Online. https://www.sohu.com/a/383902551_467197
- Sun, Z., Li, R., He, P., Shi, Y., et al. (2020). *Perspective crisis: The Impact of COVID-19 on Hotel Industry and Its Response*. Huamei Consulting. Retrieved from <https://www.meadin.com/yj/212678.html>
- TravelDaily. (2020). Ctrip released the 'Tongpao' plan, 10 measures invested 1 billion in support funds. Retrieved from <https://www.traveldaily.cn/article/135479>
- United Nations. (2004). *Living with risk. A global review of disaster reduction initiatives*. New York: International Strategy for Disaster Reduction, United Nations.

- Valle, A. S. d. (2020). *The tourism industry and the impact of COVID-19 scenarios and proposals*. Global Journey Consulting. Retrieved from [https://worldshoppingtourism.com/downloads/GJC THE TOURISM INDUSTRY AND THE IMPACT OF COVID 19.pdf](https://worldshoppingtourism.com/downloads/GJC_THE_TOURISM_INDUSTRY_AND_THE_IMPACT_OF_COVID_19.pdf)
- Wang, J., & Ritchie, B. (2010). A theoretical model for strategic crisis planning: Factors influencing crisis planning in the hotel industry. *International Journal of Tourism Policy*, 3(4), 297-317.
- Wang, J., & Wu, X. (2018). Top-down or outside-in? Culturally diverse approaches to hotel crisis planning. *Journal of Hospitality and Tourism Management*, 36, 76-84.
- World Health Organization. (2020). WHO timeline: COVID-19. Retrieved from <https://www.who.int/news-room/detail/08-04-2020-who-timeline---covid-19>
- Wu, W. (2020). *After the anti-epidemic battle, the hotel group's large-scale brand output*. Symposium conducted at the Rejuvenation · Rebirth | 2020 China Cultural Tourism and Hospitality Industry Digital Summit, Online. Retrieved from <http://www.tripvivid.com/articles/26594>
- Xu, X. (2020). Travel live-streaming helps the 'spring seed' of the travel industry. Retrieved from <http://www.tripvivid.com/articles/26602>
- Yunji Technology. (2020). The 'anti-pandemic power' of the hotel industry in the robot 'big data'. Retrieved from <https://www.traveldaily.cn/article/135999>
- Zhang, C., Cui, R., Xu, C., & Wang, J. (2020). *COVID-19 and the Chinese Hotel Sector*. HVS. Retrieved from <https://www.hvs.com/article/8723-COVID-19-and-the-Chinese-Hotel-Sector>
- Zhang, X. (2020). Jinjiang Hotel's net profit for the first quarter of 2020 was 171 million yuan, a YoY decrease of 42.26%. Retrieved from <https://www.meadin.com/jd/213578.html>
- Zhou, M. (2020). 920,000 individual hotels are dying in loneliness? Where is the new journey? Retrieved from <https://www.meadin.com/jd/213397.html>

Table 1. A review of SARS related disaster management measures in hospitality and tourism

Studies	Study area	Leung and Lam (2004)	Henderson and Ng (2004)	Kim et al. (2005)	Lo et al. (2006)	Cooper (2006)	Johnson et al. (2008)	Hung et al. (2018)
	Data source	Case study	Secondary data	Interview	Interview	Secondary data	Secondary data, questionnaires	Case study
	Disaster phases	Preventive, Reactive, Recovery	Pre-event, prodromal, Emergency, intermediate, Recovery, resolution	Shock stage, Containment, Recovery			Pre-crisis, Acute, Chronicle, review	
Pre-disaster	Following sanitation and health criteria	√				√		
	Preparing a generic contingency plan	√	√				√	
	Establishing internal standards and process	√	√				√	
	Establishing an alert system	√						
	Establishing an emergency leadership		√				√	
	Brainstorming possible scenarios		√			√		
	Assessing capacity to cope with the disaster		√					
	Preparing sufficient slack and resources	√	√					
	Training staff for handling crisis		√				√	
	Identifying external agencies and cooperation		√					
	Developing a crisis-aware culture		√					
	Establishing a media communication strategy		√					
During disaster	Activation of emergency service		√					
	Protecting employee, guests, and property	√	√	√		√		
	Establishing effective communication channels		√	√	√			
	Screening staff and guests		√			√		√
	Cleaning and disinfecting		√					
	Training staff into multi-tasking	√			√		√	
	Encouraging holidays/unpaid leaves			√	√			
	Reassuring customers		√		√	√	√	
	Retrieving resource and information	√					√	
	Promoting business turnover/discount	√		√		√	√	

	Promoting new business and marketing	√	√		√	√	
	Establishing redundancies and lay-offs policy	√					
	Seeking official aid/ collaborating with authority		√				√
	Implementing cost-cutting strategies			√	√		√
	Establishing partnership and cooperation		√	√	√		
	Investing in technology				√		
Post-di	Reviewing a crisis management framework	√	√	√			
saster	Restoring normal business operation		√				
	Conducting a damage assessment					√	
	Advertising positive signal to the community	√	√				
	Restoring customer confidence					√	
	Offering incentives/counselling to employees	√				√	
	Marketing and promotion			√			
	Developing an investment plan					√	
	Cleaning and restoring property					√	
	Improving facilities and services		√				
	Entering into cooperation		√				