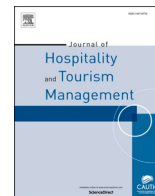




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Transcending the COVID-19 crisis: Business resilience and innovation of the restaurant industry in China

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ARTICLE INFO

Keywords:

Business resilience
Innovation
Restaurants
COVID-19

ABSTRACT

Utilizing the content analysis approach, this study analyzed 153 textual information sources to explore Chinese restaurant enterprises' innovative activities during and after COVID-19. An innovative crisis management model was synthesized from a micro-level perspective by adopting the life cycle model to dynamically measure the innovative strategies applied by Chinese restaurant enterprises in their emergency responses and recovery efforts. Two types of innovative activities that led to internal and external performances were identified based on the push and pull theory of business motivation. Findings further indicated five dimensions of innovative strategies at two different stages: pandemic prevention and control, government and community, corporate social responsibility, marketing response, and management response at the stage of emergency responses; and pandemic prevention and control, cooperation with third parties, customer service innovation, product innovation, and innovative marketing strategy at the stage of recovery efforts. Theoretical and empirical implications are also carefully discussed.

1. Introduction

The COVID-19 pandemic is one of the worst global health emergencies unseen in modern history. Like many other industries in the tourism sector, the restaurant industry has been extremely hard hit by the current pandemic. Restaurants in many countries have been forced to close or operate at reduced serving capacity due to government pandemic containment measures. Even as governmental imposed standards were slowly loosened up, the industry continued to suffer from consumers' perceived risks, lack of confidence, and pervasive loss of safety induced by the pandemic. Although the restaurant industry was negatively affected by other health-related crises before, such as SARS, Ebola, and Zika Virus, none has inflicted such broad and profound impacts as the current COVID-19 pandemic.

Two critical reasons necessitate studying the restaurant industry's business strategies and recovery in a crisis. First, the restaurant industry is highly integrated and valuable in an economic system. The size of the global food service market reached 3.5 trillion U.S. dollars in 2020. The revenue is forecast to grow to 4.2 trillion U.S. dollars in 2027, showing a compound annual growth rate of 2.7% from 2020 to 2027 (Lock, 2021). In China, the annual sales value of the food service market has kept a

compound annual growth rate of 10.1 percent from 2014 to 2019 (Foresight Industrial Research Institute, 2020). Second, the restaurant industry has experienced severe damage during the current COVID-19 pandemic. In China alone, restaurant sales have decreased by 44.3% to CNY 602.6 billion (around \$86 billion) in the first quarter of 2020 according to China's National Bureau of Statistics (Zhang, 2020). Although the food and beverage (F&B) market in China has been severely hit by COVID-19, the restaurant industry has showed great resilience. In 2021, revenue of this industry is expected to hit US\$176 billion, which represents 63% of the global F&B revenue. The annual revenue growth rate of China's food and beverage market is projected to reach 8.38% between 2021 and 2025 (Yu, 2021). Understanding effective ways for restaurants to survive, adapt, innovate, and recover from a health-related crisis like the current COVID-19 pandemic poses tremendous value for the industry's long-term viability.

Before the pandemic, as noted in the systematic literature review by Mair et al. (2016), the health-related crisis is an under-investigated area in the tourism field. However, the academic community have disseminated timely studies to explore the effect of COVID-19 on the hospitality industry and evaluate the industry resilience practice globally from various market segments, including bed and breakfast facilities (Hong

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<https://doi.org/10.1016/j.jhtm.2021.08.024>

Received 29 January 2021; Received in revised form 8 July 2021; Accepted 27 August 2021

Available online 6 September 2021

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et al., 2020), hotels (Yang et al., 2021), and restaurants (Yost et al., 2021). Three main research streams were identified in recent COVID-19 studies in the restaurant industry, the first of which is from the risk perception perspective. Several factors which may affect guests' risk perception (Byrd et al., 2021) and patronage choices (Wang et al., 2021) were identified in the literature such as the image of country-of-origin (Wei et al., 2021), restaurant service (Luo & Xu, 2021), trust, loyalty, and transparency (Yost & Cheng, 2021). The second is related to restaurant practitioners' practices and strategies, including delivery, service type, discount (Kim et al., 2021), innovative activities, and new market channels (Yang et al., 2021). The third is the collaborative strategies with multi-stakeholders (e.g., employees, media, and customers) to successfully improve business resilience (Bufquin et al., 2021; Sung and King, 2021).

This current study explores how the restaurant practices can potentially improve against the backdrop of the pandemic, given no study has explored the practices of restaurants from a holistic perspective. Further, there still appears to be a void in exploring the underlying themes instrumental in rebuilding and strengthening the restaurant industry. This study, therefore, explores the resilience and innovation mechanism in the industry. Adapted from Barasa et al. (2018), resilience of the restaurant industry refers to the ability of a restaurant enterprise to withstand shocks and transform in face of challenges. The novel insights of this study would contribute to the literature by providing a holistic crisis management model and help the industry practitioners to identify strategies to improve business resilience. As a result, this study is designed to address the following research questions.

- (1) What factors may have improved resilience of the restaurant industry?
- (2) How can the factors identified from (1) be synthesized into an innovative crisis management model?
- (3) What are the primary attributes that improve the efficiency of the innovative crisis management model in (2)?

This study focuses on the restaurant industry in China for the following reasons. First, the resilience strategy of the restaurant industry in China in response to the impact of COVID-19 is worthy exploring. China's restaurant industry is the first to be affected by COVID-19 but it has also seen a robust recovery from the impact. In response to the rampant outbreak of the COVID-19 pandemic, the Chinese government implemented "aggressive disease containment efforts" (WHO, 2020, p16). The stringent containment policies and efforts (e.g., lock-down measures, suspension of public gatherings, and a "stay at home" order) proved to be effective in curbing the spread of the deadly virus. Meanwhile, due to lock-down measures, the restaurant businesses in China were severely affected, and the public's concern for safety of eating in restaurants was heightened (Liu et al., 2020). Nevertheless, the industry survived and adapted to a challenging time with resilience and innovation. As provinces and cities began to loosen COVID-19 restrictions in February 2020, restaurants reopened their operations by rethinking their business process of food safety, employee training, product innovation, and marketing communication. As of May 2020, the operation of popular restaurants across China have recovered to 70–80% of their pre-pandemic capacity, and online restaurant revenues grew more than 20% year-on-year due to innovations and demands in delivery services (Global Times, 2020). The restaurant industry in China has demonstrated resilience and effectiveness in coping with the severe impact related to the crisis. The underlining mechanism behind the industry resilience needs to be analyzed and a guiding framework provided for industry practitioners. Second, innovation activities of China's restaurant enterprises and their implications in the New Normal era need further investigation. The term New Normal refers to the stage characterized by striking economic, social and cultural transformations caused by COVID-19 (Corpuz, 2021). The consumer perception and their habits have changed due to the pandemic, such as preparing meals at

home after the virus passes, continuing to order food from food delivery platforms, and eating healthy and safe food (e.g., Forouidi et al., 2021; Byrd et al., 2021). Thus, China's restaurant industry showed dramatic innovation abilities during the COVID-19 pandemic, new forms and models of business has stressed innovation in this sector, making the industry healthier and greener as compared with pre COVID-19 (Lin, 2020). New opportunities have been reported in China's restaurant industry, such as the emergence of fresh food e-commerce, live streaming e-commerce, food supply chain integration, and the development of health food market (China briefing, October 2020). Although we recognize the varying impact scales of the COVID-19 crisis in other countries with different social, cultural, and political contexts, the results of this study will provide an initial reference point for the general restaurant industry on its road to recovery.

2. Literature review

2.1. Crisis and disaster management

Crisis is defined as one or a range of events that disrupt the operation and threaten the viability of an organization, industry, nation, or society (Novelli et al., 2018). Some scholars distinguish crises from disasters based on their root causes (e.g., Prideaux et al., 2003). Specifically, crises are self-inflicted through human errors and internal management failures. This implies that a crisis is somewhat predictable and minimized (Reddy et al., 2020). Examples of crises include corporate executive misconduct, financial meltdown, terrorism and political unrest, and an oil spill (Prideaux et al., 2003). In contrast, disaster is a "sudden and unpredictable catastrophic change" originated from an external environment of which those involved have little or no control (Faulkner, 2001, p. 136). Natural disruptions such as earthquakes and tsunamis, and pandemics caused by new strains of virus and bacteria are considered as disasters.

Despite their definitional distinctions, crises and disasters often precipitate a series of follow-on effects that add chaos and complexity for those involved to cope with (Prideaux et al., 2003). Both are characterized by low probability, high impacts, ambiguity of effects and means of resolution, and urgency in decision making (Tse et al., 2006). In addition, both crises and disasters can be interconnected in triggering internal failures and exacerbating their compounding effects (Mair et al., 2016).

Rather than focusing on the conceptual differences between a crisis and disaster, perhaps it is more useful to understand the nature, magnitude, and impacts of a specific crisis or disaster. Impacts and resultant responses to a specific crisis are likely to vary due to their unique nature (Ritchie, 2004). For example, natural disasters such as earthquakes can cause devastating damages on physical infrastructures in a relatively short time. Still, these harmful effects might take years to recover from after an occurrence. The disruption of communication, electrical, and other physical supply and distribution chains can be detrimental for even the best prepared business (Huang et al., 2008). On the other hand, health related crises including the current COVID-19 pandemic halt the normal operation of business through heightening people's perceived risk and fear of uncertainty and curtailing consumer demands. Strategies to handle crises can vary depending on the scale and impacts of the event, time pressures, and the degree of control (Ritchie, 2004). The SARS, Ebola, and COVID-19 pandemics are crises that arose from highly contagious virus transmission, wide negative media coverage, and increasing public fear. Yet, no pandemic in recent history has reached such broad and deep impacts on the global hospitality and tourism industry as the COVID-19 pandemic. The profound impacts from the COVID-19 pandemic are likely to propel the industry and its individual business to engage in unprecedentedly comprehensive and in-depth innovations that can transform the industry's future.

There are numerous crisis management frameworks in the hospitality and tourism literature. Based on their literature review on crisis

and disaster management between 1986 and 2006, [Huang et al. \(2008\)](#) identified 11 crisis and disaster management models and summarized them into four approaches. These four approaches continue to be relevant in the ever-growing research area of crisis and disaster management. The first approach is the life cycle approach. This approach divides crisis/disaster management into various phases, for instance, three phases (pre-event, emergency, post-event) and six phases (pre-event, prodromal, emergency, intermediate, long-term, and resolution). [Faulkner's \(2001\)](#) framework is one of the widely used models in the tourism field in face of natural disasters including six phases of crisis management, namely pre-event preparation, resources mobilization, immediate actions, recovery efforts, reconstruction and reassessment and review. The second approach is the strategic management model, which describes generic steps of managing and recovering from a crisis or disaster. The three primary components in this process are crisis management formation, implementation, and evaluation ([Huang et al., 2008](#)). One example of such an approach is the study of Hong Kong developed strategies in response to the SARS outbreak by [Tse et al. \(2006\)](#). The researchers applied Stafford and his colleagues' (2002) four-step crisis management procedures (i.e., crisis categorization, damage assessment, tactics formulation, and effectiveness evaluation). The action-oriented approach is the third category of crisis management ([Huang et al., 2008](#)). Crisis management frameworks in this group list crisis management activities under the four Rs ([Wilks & Moore, 2004](#)): *reduction, readiness, response, and recovery*. The integrated approach, the fourth classification of crisis management, divides crisis management activities into two types: proactive and reactive responses ([Huang et al., 2008](#)). Proactive activities include the readiness and reduction efforts in the pre-crisis period, while the reactive activities are the responses and recovery work during and after the crisis.

These four approaches are not mutually exclusive, and they are often integrated in a comprehensive model. For example, [Ritchie's \(2004\)](#) holistic tourism crisis management framework incorporates the crisis life cycle approach with a strategic management framework. It consists of three strategic management focuses, namely, crisis/disaster prevention and planning, strategic implementations, and resolution and future learning, along with the six phases of crisis management outlined by [Faulkner \(2001\)](#). The framework also considers the dynamics and fluidity of a crisis and allows flexibility and a feedback loop in strategy modification. [Novelli et al. \(2018\)](#) applied Ritchie's framework and demonstrated its usefulness in understanding the Gambia's response and recovery effects in combating the negative images associated with the Ebola outbreak in Africa.

Although much extant research has been done on crisis and disaster management in hospitality and tourism, two research gaps have been identified. First, most research on crisis and disaster management is conducted in the tourism context. The restaurant industry is an under-investigated sector in this field. From their bibliometric analysis of literature between 1996 and 2016, [Ritchie and Jiang \(2019\)](#) found the emphasis of crisis and disaster management is on tourism rather than the restaurant industry. Although a significant amount of literature related to COVID-19, hospitality, and tourism has recently appeared, only a small portion has concentrated on the restaurant industry (Section 2.3 provides a detailed review). Second, as [Israel \(2007\)](#) mentioned, the current literature on crisis management concentrates on prescriptive models that provide general and broad guidelines. Micro-level business practices are seldom investigated. Some studies (e.g., [Tse et al., 2006](#)) might describe specific tactics such as cost reduction, revenue enhancement, and market communication. However, they do not comprehensively reflect all aspects of business actions in response to crises and disasters. [Mair et al. \(2016\)](#) noted that the key response tactics covered by most crisis and disaster literature in the hospitality and tourism field are in communication, marketing strategies, and proactive planning/future preparation.

In order to fill the research gap, this present study focuses on restaurant companies' response and recovery efforts during and post the

COVID-19 pandemic in China. As an unprecedented event, the COVID-19 pandemic has brought about unforeseen volatility and complexity to the restaurant industry. Although the pandemic severely threatens the industry's survival and viability, innovation from individual restaurant operators, contrastingly, may allow the restaurants to thrive. Based on the chaos and complexity theory, [Russell and Faulkner \(2004, p. 561\)](#) stated that innovation is born out of unpredictability as individual businesses "find a gap amid the chaos, create an opportunity and set about changing the status quo, bringing new standards into existence". [Dahles and Susilowati \(2015\)](#) demonstrated that local accommodation businesses in Indonesia remain resilient in the face of a series of crises through effective survival and adaptation strategies and innovation. Since the restaurant industry in China is bouncing back quickly from the COVID-19 pandemic, the question here is what management and innovations efforts have they engaged to remain resilient.

2.2. Business resilience and innovation

Business resilience is defined as "the ability to respond productively to significant changes and to cope with unanticipated dangers" ([Ritter & Pedersen, 2020, p. 222](#)). Chaos and complexity theory maintains that the business environment is inherently complex, uncertain, and dynamic ([Ribeiro & Cherobim, 2017](#)). Crises and disasters can complicate the environment even more so by introducing shocks and subsequent ripple effects that forcefully shake the equilibrium of an industry and threaten survival of individual businesses ([Prideaux et al., 2003](#)). Resilient businesses have not only the short-term coping capacity to recover from violent disturbances, but also the long-term adaptive and innovative abilities that may generate profound changes of their business models post crises and disasters.

[Dahles and Sulowaiti \(2015\)](#) described resilience as a business's ability to survive, adapt, and innovate in the face of turbulent environment. This definition implies three different perspectives of business resilience. First, resilience is viewed as a business's ability to restore its operation and capacity to the pre-crisis perceived normality; However, it is also recognized that the new "normal" is likely to be established after environment shocks ([Prideaux et al., 2003](#)). Therefore, the second view of resilience is conceived as a business's ability to introduce gradual changes and new business concepts that naturally arise through the improvement of existing products, procedures, and operation. The third perspective of resilience is based on the transformative effects of a crisis or disaster. Businesses are propelled to engage in changes that are urgent, unplanned, and drastically different from existing business models, resulting in completely new markets, products, services, operations, and partnership networks or leadership ([Dahles & Susilowati, 2015](#)).

Resilience thinking has been applied to the hospitality and tourism industry and business in recovering from natural disasters ([Orchiston et al., 2016](#)), long-term political unrests and conflicts ([Reddy et al., 2020](#)), financial shocks ([Burnett & Johnston, 2020](#)), and a combination of crises and disasters ([Dahles & Susilowati, 2015](#)). In general, scholars hold that resilience requires business to have adaptive thinking, which is a mindset that businesses are willing and able to shape their behaviors and practice flexibility in accordance with the changes from the external environment. During this process, businesses may go through coping and learning, breakdown, and reorganization periods. [Reddy et al. \(2020\)](#) referred to this process as the "phoenix phase" for a business or industry to achieve resilience. As a result, resilient businesses may suspend or retire some rigid capacities that hinder their growth, maintain robust and stable functionalities, and innovate through improvements and creations ([Ritter & Pedersen, 2020](#)).

Innovation is an important means for businesses to survive and remain resilient in the face of external perturbations ([Wang et al., 2019](#)). Some scholars refer to innovations as the process of using creative thinking and actions to achieve success through exploring new ideas ([Adams et al., 2006](#)), such as a new form of product, process, marketing, technology, service, and business operations that did not exist

previously. However, others argued that innovation does not have to be completely new and groundbreaking. Incremental improvements from existing systems are necessary parts and stages of innovations because innovation does not arrive at the industry in its perfect form (Ribeiro & Cherobim, 2017). Based on this line of thought, Ribeiro and Cherobim (2017) observed that literature on innovation distinguishes radical and incremental innovations, while Wang et al. (2019) illustrated that achieving disruptive innovation takes a process: leaping innovation development comes from many fast iterations of micro-innovation.

Zmud (1984) insisted that push and pull conditions are needed to stimulate business innovations. In other words, businesses need to have a need and a means for innovation to occur. Crises and disasters present a fast changing and complex environment for a business to navigate through, and they can often serve as a powerful push force for business innovation. Ribeiro and Cherobim (2017) noted the strong relationship between environmental variables and business innovation: the higher the degree of complexity and uncertainty an environment is characterized by, the stronger its effect on the magnitude and nature of innovation. In their recent study, Ritter and Pedersen (2020) illustrated the process of how the current COVID-19 pandemic is affecting the business model innovation. They found that the pandemic does not post linear and equal effects on customer demands for different businesses or even different business aspects of the same company. Customer demands also fluctuate verily along the course of the crisis. Customer demand changes lead to modification and re-invention of the business's value proposition and demonstration and, subsequently, the change in business activities/capacities (e.g. resource allocation and deployment, learning, and knowledge management). Besides customer demands, crises and disasters can also affect other external stakeholders' actions towards a business. For example, Novelli et al. (2018) highlighted the concerted efforts from the Gambia's tourism government agencies in aiding the destination in remaining resilient from the negative impacts of the Ebola outbreak.

Besides external push factors, internal pull factors are needed to materialize innovation. Dynamic innovation capacity, management's positive attitude toward innovation, and organizational receptivity toward changes are considered necessary and critical factors in business innovation (Wang et al., 2019). Dynamic innovation capability is comprised of three aspects (Wang et al., 2019): environment sense capacity (i.e. identifying opportunities in a volatile environment), flexible operational capacity (e.g. adapting organizational structure, learning, and operations quickly to generate innovative solutions), and innovation capacity (e.g. converting innovative ideas into actions and tangible performance). In addition, dynamic innovation capacity requires coordination of efforts among different business functions and stakeholders within an industry (Wang et al., 2019). Marasco et al. (2018) maintained that hospitality and tourism stakeholders increasingly engage in cooperative behaviors, co-creation, collaborative networks, knowledge transfer, and innovative policy making to maintain competitiveness and resilience. Bhaskara and Filimonau (2021) also identified the significant role of organizational learning for disaster management during the COVID-19 in the context of the tourism industry.

2.3. Updated theories and research findings on COVID-19 and the restaurant industry

In the restaurant context, there are three main threads in crisis management research. The first thread focuses on the guests' risk perceptions and behavior changes (Byrd et al., 2021). Guests may have higher risk perceptions when dining in restaurants compared with take away from the restaurants (Byrd et al., 2021). Risk perceptions may be affected by demographic and social factors. In Wang et al.'s study (2019), US guests are more perceptive to overcrowding, whereas Australian guests are more perceptive to various types of safety measures, which strongly affect their restaurant patronage choices during COVID-19. Moreover, luxury restaurant guests may decide to cancel

their reservation when they feel there is a highly safety risk. Online reviews significantly affect restaurant guests ability of make safe dining decisions (Luo & Xu, 2021). Luo and Xu (2021) proposed that online reviews were determined by four main attributes of restaurants including service, experience, food, and place. The positive image of country-of-origin may also enhance restaurant guests' trust and dine out intentions during COVID-19 (Wei et al., 2021). Besides, the role of trust, loyalty and transparency may also affect guest decision making of whether or not to dine in a restaurant (Yost & Cheng, 2021). Dedeoğlu and Boğan (2021) further indicated that two motivations (sociability and affect regulation) may affect upscale restaurant guests' visiting intention, and guests' trust in government and COVID-19 risk perception worked as moderators of the relationship between guest motivation and visit intention.

The second thread tends to focus on restaurant practitioners' response practices related to the pandemic. Kim et al. (2021) explored 86,507 small and medium-sized restaurant organizations' financial data in China and indicated that three main operational attributes (delivery, service type, and discount) and brand play an essential role on maintaining the sustainability of restaurants' financial turnaround. Since online food ordering has become an essential market channel for restaurants due to the mandated suspension of dine-in services, a growing body of research seeks to explore the innovative activities which have led to the success of restaurant industry resilience. For example, Yang et al., (2021) examined the guest reviews on food delivery platform (FDP) and argued that FDP may help China's luxury hotels to gain salvage revenues and enter a new market. Kim et al. (2021) explored the factors that influence financial turnaround in China's restaurant industry and also indicated that delivery service and brand image play essential roles in increasing sales of restaurants during the COVID-19 pandemic.

The third thread emphasized the study of crisis management and business resilience in the restaurant industry from a stakeholder view. Employees are considered as an essential stakeholder for the restaurant industry. They suffered high levels of psychological distress, which resulted in drug and alcohol use, and they preferred to seek new jobs in alternate industries during COVID-19 (Bufquin et al., 2021). Chen and Eyoum (2021) identified the intense relationship between frontline staff's emotional exhaustion and job insecurity during the pandemic. Hu et al. (2021) also argued the four steps of employee compliance process (health and risk awareness, perceived utility, behavioral adaptation, and integration) which can help restaurant organizations to reach intense compliance with COVID-19 safety measures. Sung and King (2021) further addressed that media exposure and media attention can enhance restaurant guest preventive behaviors during the pandemic.

Current studies have provided some information about the threats of COVID-19 on the restaurant industry and the industry's responses. However, the descriptive nature of these studies limit their ability in examining the industry's crisis management responses and resilience from a holistic view. How the restaurant industry responds to, adapts, and innovates in this global pandemic from a holistic view is still lacking. Most current studies have focused on the impact of COVID-19 from a perspective of a selected group of stakeholders in the restaurant industry, such as employees (Bufquin et al., 2021), restaurant guests (Yost & Cheng, 2021), and restaurant operators (Kim et al., 2021). Only a few studies address how the restaurant industry actively responds to, adapts, and innovates in this global pandemic. In addition, most of these studies adopt a qualitative method to observe a specific phenomenon (e.g., Wen et al., 2020), such as food delivery platforms (Yang et al., 2021) and the application of humanoid robots (Zeng et al., 2020). Only limited studies have explored business resilience of the restaurant industry from a multidimensional perspective (e.g., marketing, supply chain management, human resources management, etc.). Such a holistic and multidimensional view is critical in understanding innovation in the restaurant industry, which is a dynamic process with all stakeholders involved. Thus, the purpose of this study is to address the following

important research questions: How did industry practitioners collaborate and innovate with multiple stakeholders in response to the pandemic? What factors may drive deep collaboration and innovative crisis management? And what are the recovery and resilience practices in the restaurant industry in China?

3. Research methodology

3.1. Sample

Data collection was carried out from December 2019 until July 2020. Purposive sampling was adopted using the snowballing technique (e.g., Hua, 2016). The advantage of the snowball sampling technique is to investigate a population which may be hard to access, reducing experimenter selection bias and the difficulty in collecting data (Jackson et al., 1996). The sample pool included the announcements issued from private hospitality companies, publicly traded companies, the government official websites, and other releases such as online newspapers in China. The saturation principle was applied to determine the proper number of data points (Hua, 2016). The study began by several key word searches, such as “COVID-19”, “Restaurant industry in China”, and “restaurant industry resilience”, and stopped at 153 textual information sources when findings showed thematic saturation and a theoretical framework representing industry innovation performance had been revealed. Since the sample was selected both in the English context (e.g., English version announcement of public companies, English articles released by Chinese state-run medias such as CCTV), and in the Chinese context, translation and the back translation method were adopted in this study (Zhang, Fong, & Li, 2019). Two authors, both fluent in written and spoken English and Chinese, were responsible to maintain the accuracy of the translation, and disagreements were decided by the team to make sure of the semantical validity of this study.

3.2. Method

Given the study’s objective to explore restaurants’ business practices and recovery measures during and after the major COVID-19 outbreak in China, a data-driven approach was applied by adopting the grounded theory (York & Zhang, 2010). The memoing technique was adopted to analyze the collected data. The researchers took memos to record the key points detected from the data and then found key themes by further synthesizing and analyzing the recorded memoing (Zhang, Bufquin, & Lu, 2019). To ensure the analysis’s reliability, two researchers in the project read and coded the data separately, intending to detect emerging themes and sub-themes. Comparing two separated content analysis results showed a similarity of 85%, which meets the requirement of the qualitative analysis research standard (80%) (Landis & Koch, 1977). The data’s emerging themes and factors were further assessed and discussed among all the team members (Liu et al., 2020).

4. Findings

Premised on the synthesis and analysis of the secondary data, the Chinese restaurant industry’s crisis management response model was summarized (Please see Fig. 1). Several conceptual crisis management frameworks identified the response corresponding to the crisis’s life-cycle for the tourism sector (e.g., Ritchie, 2004). The study detected two main stages of the crisis management process: *Emerging reaction* and *Precautions and prevention* period. The response of Chinese organizations in the catering industry can be specified in five main themes for each process (as indicated in Table 1 and the Appendix) and clarified in detail as follows.

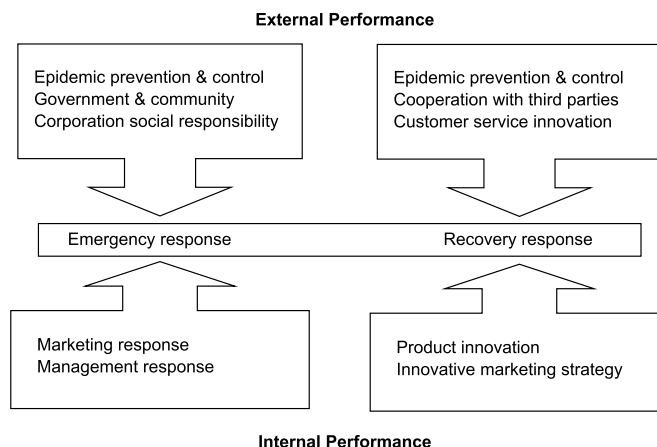


Fig. 1. The innovative crisis management model for restaurant enterprises.

Table 1
Summary of themes and sub-themes for content analysis.

Emergency response	
Epidemic prevention and control	Shut down Establishing crisis response headquarter Implementing the crisis management procedures cleaning and disinfection of facilities
Government and community support	A reduction in rent A reduction in loan interest rates Exempt VAT Issuing consumption coupons
Corporation social responsibility	Providing free meals for medical workers Donation Charity show
Marketing response	Take out or order deliveries Contactless deliveries
Management response	Share food safety photos of videos with customers Product Line adjust Re-factor a service process Cost saving Labor sharing
Recovery response	
Covid-19 prevention	Providing a “health-status code” Checking customer body temperature Environment disinfection Checking staff temperature Continuing social distancing measures
Customer service innovation	Robots aided restaurant Automated kitchen kiosk with mobile payment Innovative customer loyalty maintaining
Product innovation	Retail catering Smaller dishes campaign Changing raw materials Research and development
Innovative marketing strategy	Group meal Community based sale Cutting prices of fine restaurants Create a new sub-brand with lower prices Multi-digital sale channels
Collaboration with third parties	Collaboration with banks Collaboration with E-commerce giants Collaboration with logistic company Collaboration with food delivery service platform Collaboration with retailers Collaboration with suppliers

4.1. Emerging reaction

4.1.1. Theme I: pandemic prevention and control

China adopted a prompt reaction to the outbreak of COVID-19 such as closing restaurants. These effective measurements helped China to reduce the number of new infections; meanwhile, the restaurant industry began facing operation difficulties. Most of the restaurants took actions to handle the pandemic situation. First, almost all the restaurants

shut down to meet the Chinese government's first-level public health emergency response mechanism requirement. A *Crisis response headquarters* was established to respond to the pandemic promptly. For example, Haidilao, a hot pot company, set up on-site headquarters in 24 cities with logistics supply and food safety managers equipped (Domeet Webmaster, 2020). The *crisis management procedures* according to a set of guidelines released by National Health Commission (NHC) was also fully implemented, such as *cleansing and disinfection of facilities*, staff health management, and better preventing food contamination.

4.1.2. Theme II: government and community support

Social support is essential for the crisis recovery of the restaurant industry. Civil society and other institutions (e.g., industry unions and religious organizations) should be involved in crisis management activities. Local governments should implement stimulating policies, such as tax relief, credit extension, and funding support for national tourism businesses to stimulate the domestic tourism market when facing a lack of international arrivals (De Sausmarez, 2004). The restaurant industry in China faced 44.3% of its revenue loss (China.org.cn, 2020). The authorities took several measures to boost the food consumption market, such as *reducing loan interest rates, exempting VAT, and issuing consumption coupons*. Property owners also provided a *reduction in rent* for restaurant enterprises. For example, the authorities took various measures to boost consumption including distributing coupons.

In an effort to boost consumption and offset some of the negative impacts of the novel coronavirus outbreak on the economy, authorities in more than 30 cities in 17 provincial-level regions have distributed consumption coupons among local residents. (China Daily, April 18, 2020).

4.1.3. Theme III: corporation social responsibility

Corporation social responsibility (CSR) has been widely studied for a company's actions towards the market or the society (e.g., Theodoulidis et al., 2017), which may have a positive effect on a company's competitiveness, reducing cost (Aguilera et al., 2007), and affecting employee and customer loyalty (Magrizos et al., 2020). Ding and Jiang (2021) also identified a significant positive correlation between consumer awareness of restaurant philanthropic activities and their loyalty towards the restaurant during the period of the COVID-19 pandemic. The restaurant industry and other enterprises have come together to help the government to prevent the pandemic by donating funds, medical and daily necessities, *providing free meals for medical workers*, and holding *Charity shows*, which may significantly improve the restaurant enterprise's customer loyalty. For example, Yum China donated RMB 3 million to hospital workers in Wuhan (PR Newswire, February 21, 2020).

4.1.4. Theme IV: marketing response

Several measurements were enacted in China to reduce the adversary impacts of the COVID-19 pandemic, including a stay-at-home order, a lock-down, and nationwide traffic restrictions. As a result, restaurants tried to gain cash flow from *take-out or delivery services*. To promote restaurant business, *contactless deliveries* were innovated with the help of technology facilities to guarantee food safety. *QR codes* were provided with a food package so that customers can quickly scan the code and choose their meals, and by March 14, more than 110,000 restaurants had received the safe logo from the food ordering app Meituan. Restaurant clients could then scan a special QR code to view a given restaurant's epidemic prevention procedures and practices (CGTN, March 19, 2020). *Smart food cabinets* were equipped with automatic disinfection to ensure food safety. Several measurements, such as checking a deliverer's body temperature, mask-wearing, and other disinfection procedures, were also strictly implemented. Furthermore, customers scanned a special QR code and *watched live cooking videos or other disinfection store photos*, providing thorough safety information to customers.

4.1.5. Theme V: management response

Product line adjust strategy was applied to the hardest hit businesses to meet the requirement of customers. Guests of restaurants, many of whom were cooking at home, changed their consumption habits, some for a short time period, but others for longterm. *Selling raw material* became an option to reduce the loss, and many restaurants developed *semi-finished products* for customers to cook at home. An example is from the restaurant chain called Meizhou Dongpo, which made its most popular dishes normally served into semi-cooked products. (ChinAfrica & May, 2020). Meanwhile, *re-factoring a service process* has helped restaurants to prevent the pandemic in the long run. Most restaurants recognized the importance of food safety. They began to re-factor their service processes from several perspectives, such as food delivery systems, kitchen facilities and cooking utensils selection, raw material purchasing, menu design, and personnel training. *Cost-saving* is also essential to support a restaurant to have enough funds to beat the cash flow crunch. A cost reduction initiative was implemented including temporary closings, pay cuts, reducing raw materials and other operating expenses. Among them, a very innovative *labor sharing* scheme was implemented to alleviate the pressure on labor costs. Companies with a labor shortage, such as supermarket and manufacturing enterprises, and companies with temporary labor surplus (e.g., restaurants) may share their workforce, which can get a win-win human resource allocation of the whole society during the pandemic. The Ministry of Human Resources and Social Security (MHRSS) has also offered compliance implications for this new labor sharing agreement during this difficult period (China Briefing, April 2020) More details about this are found in the appendix.

4.2. Recovery response

Most Chinese restaurants felt the immediate impact of the pandemic, and they faced a shortage of labor and cash flow since most of them are small enterprises. The Chinese government has provided business financial support for small and medium enterprises, and 95% of China's food and beverage industry fell into this category of projects (Cheng, 2020). Consumer sentiment and behavior changed due to long periods of self-isolation and economic uncertainty. Several creative and innovative strategies have been implemented among the industries as follows:

4.2.1. Theme I: COVID-19 prevention

Visible sanitization procedures may make guests feel at relative safety when dining out. Except for the measurements of pandemic prevention and control mentioned above, several health and safety measures have been adopted by the restaurants, such as hand-sanitizing, wearing gloves and masks, *checking customer body temperature, checking staff temperature, and environment disinfection*. When customers enter the restaurants, they should provide a green color "health-status code" monitored by the Chinese government. Staff also need to show their health-status code before entering the property and vice versa. *Continuing social distancing measures* has been implemented for infection prevention, such as *capacity controlling, curbside pickup, and mobile payments only*. *Separate dining*, along with using disposable chopsticks, is also mandatory when dining out, something which changed Chinese traditional group eating habits. For instance, Shu Daxia Hot Pot, which is a Sichuan hot pot chain, installed full-body disinfectant machines that spray guests at the entrance to their restaurants (The Restaurant News, April 27, 2020).

4.2.2. Theme II: customer service innovation

Given the importance of an organization's strategy to limit its potential negative impact on its customers in the restaurant industry (Paraskevas et al., 2013), this study identifies several innovative activities on customer service activities. Technology was widely adopted in improving customers' satisfaction and dining experience. To implement social distance and improve a customer's psychological sentiment about

the safety of his or her dining environment, *robot aids in restaurants*, *kiosks with mobile payment*, and *automated kitchens* have been introduced to the restaurant industry. Digital solutions will not only be essential to improve the turnover and revenue of Chinese restaurants, but they will also be widely applied in *maintaining customer loyalty*. Chinese restaurants also employed online marketing strategies, such as providing electronic vouchers, teaching customers how to cook at home, sharing new products, and updating their news on social media.

4.2.3. Theme III: product innovation

Several new products have already launched in the Chinese restaurant product portfolio. *Smaller dishes campaign* has successfully gained the support of local government and customers in a niche market. Traditionally, the portion of a Chinese restaurant serving is large enough to share, but smaller dishes and individual servings can provide a safer dining experience. *Changing raw materials* has also been considered for restaurants. More than 60 percent of Chinese restaurants tried to reshape their product portfolio from traditional food service to *retail catering* (China Daily, May 14, 2020). Efforts of large scale chain restaurants were focused on *research and development*. New types of food, such as semi-finished products, have become the prioritizing research project to meet the emerging consumption market.

4.2.4. Theme IV: Innovative marketing strategy

The restaurant industry has confronted several challenges accompanying the rapid pace of change driven by the customer consumer psychology and behavior. Concerns over the safety and healthy food options, rapidly developed technology, and the online sales market increased consumer expectations, and the intense competition environment are forcing the fast response of the industry to such trends. *Group meal sales* were implemented to expand sales quota. Most restaurants have moved to rely on more *community-based sales* as the long run marketing strategy, since community-based marketing channels can build a stable customer base and maintain higher customer loyalty than other channels (McKenzie-Mohr, 2000). High-end restaurants also had to adjust their marketing strategy to face the uncertain environment. One measure is to *cut prices*, while another is to *create a new sub-brand with lower prices* in order to maintain the brand image. Among all the innovative measures, *multi-digital sales channels*, including *livestreaming catering*, *developing restaurants' own apps*, *mini-applications within Wechat*, and *social network sales*, can be considered the most challenging innovative actions to meet and exceed customer expectations. Following are some examples.

online activity became their main focus, including Internet marketing HeyTea regularly posted things like a 'new breakfast toast' on Weibo and taught users how to do milk tea at home. On March 12, it released an online video to communicate with fans on how to share new products and to show newly launched stores (EqualOcean, March 14, 2020)

4.2.5. Theme V: cooperation with third parties

The literature on crisis management of the hospitality industry has identified that cooperation among organizations can play a role in improving crisis resilience (e.g., Henderson, 2007). To encourage consumption, restaurants have taken action to cooperate with third parties during post-pandemic periods. An essential collaborative response of the restaurant is to group meal orders on Banking apps. China Merchants Bank launched 'China Merchants Bank Takeaway App' and cooperated with Xi'an famous catering brands to provide work meals for enterprises (Sina, February 17, 2020). *Collaboration with banks* not only helps restaurants to expand market channels but also enhances the bank's customer service experience. *Collaboration with E-commerce giants* can promote a restaurant's brand and increase sales. Cooperation schemes, such as the "catering retail development alliance" provided by JD Fresh,

had nearly 200 restaurant enterprises joined. Thirdly, since the fast growth of the food delivery business, *collaboration with logistics companies*, along with *collaboration with food delivery service platforms*, has also been implemented among the enterprises. To provide reliable and high quality semi-finished products, retailers, such as Walmart have sought safe food provider partners. *Collaboration with retailers* has offered new solutions for customers cooking at home. Last, but not least, *Collaboration with suppliers* may help food suppliers to sell seasonal vegetables for a community and implement supply chain strategic adjustment of the restaurant industry.

According to the findings, an innovative crisis model for the restaurant industry can be summarized as follows (see Fig. 1).

- This study identified an innovation model that was triggered by the COVID-19 pandemic of COVID-19. The rapid transformation of the restaurant's overall environment, the unpredictable customer behavior, and consumer habits all have an inevitable effect on an organization's decision-making. A prompt response is followed by life cycle crisis frameworks (e.g., Ritchie, 2004) and is divided into two stages: emergency response and recovery response.
- According to the pull and push theory of business motivation (Zmud, 1984), this study has identified external and internal performance in the framework, representing the diffusion of innovation in the Chinese restaurant industry.

5. Implications

5.1. Theoretical implications

This study makes several theoretical contributions. First, to the best of our knowledge, this study was the first to systematically evaluate the innovative practices regarding the resilience of the restaurant industry. Past studies have identified influencing factors which may affect the patrons' restaurant choices (Wei et al., 2021) and the business performance (Kim et al., 2021). Recent studies addressed the effects of the COVID-19 pandemic on the restaurant industry from various micro-operation perspectives, such as customer's risk perceptions (Byrd et al., 2021), loyalty (Yost & Cheng, 2021), and brand (Dedeoğlu & Boğan, 2021). Other works focused on examining the correlations between frontline staff's psychological health and work performance (e.g., Bufquin et al., 2021), measures (such as safety training, safety commitment, and high-quality communication) may reduce the confusion of employees' daily tasks (Hu et al., 2021). Given that the external and internal environment has become chaotic and unstable as a result of the impact of COVID-19, it is essential to take a holistic approach to evaluate the effectiveness of recovery strategies. The current study systematically analyzes underlying factors during the process of innovative practices, and the findings might offer additional explanations regarding to the performance of the restaurant industry during times of high risk caused by the COVID-19 pandemic.

Second, this study enriches the current understanding of crisis management related to the restaurant industry's health-related crises by providing an innovative crisis model. Prior studies related to the crisis management model in the hospitality sector are often generic and prescriptive, and they barely addressed how to achieve resilience in crisis management through industry specific innovation activities (e.g., Ritchie, 2004). Compared with hotels or destination management organizations, restaurant enterprises are more fragile when facing health-related crises due to their typical small-scale, low liquidity, and sensitivity to product contamination. This study provides a theoretical contribution to the business resilience strategy from innovation theory for this specific market. The finding identified innovative activities in emergency and post-event recovery phases that led to internal and external performances. Five themes of multi-dimensional and innovative strategies that Chinese restaurant enterprises employed to remain resilient are further identified. These results can be adapted for the

development of innovative crisis management models in future research.

Lastly, the extant academic body of knowledge on crisis management is mainly developed from a macro-level perspective (e.g., Novelli et al., 2018), leading to a lack of research on enterprises' innovative behavior. While general crisis management frameworks are valuable and important, frameworks that reflect specific innovation and crisis management practices are equally important for industry. Therefore, this study also makes theoretical contributions by examining the relatively under-developed strands of enterprise practices and decision-making processes through a content analysis approach. The long-term adverse effects of COVID-19 may exist; the restaurant industry cannot confront the challenges by adopting a "normal" business strategy. In this circumstance, the resilience process can be considered the "phoenix phase" (Reddy et al., 2020) due to the impacts of the complicated and unstable external factors, such as supply chain, customer behavior, and competitor strategy. Innovation will be an essential means for restaurant enterprises to survive and transform (Wang et al., 2019). The analysis of spontaneous innovation activities in the industry can arguably provide a more accurate representation of current outcomes of organizational resilience than can any prior research.

5.2. Practical implications

Our study findings provide practical guidelines to assist industry practitioners in adopting innovative activities to achieve crisis resilience. The current study is one of the few studies to derive multiple solutions that lead to external and internal performance with various business strategies to help restaurant enterprises make better decisions in a fluid business environment. Creative destruction can lead to innovation, and the process of innovation diffusion can lead the industry to reach new equilibria (Rogers, 2010). Prior studies have demonstrated several innovation strategies during COVID-19, new business models and new equilibria are established, and industry innovation emerges (e.g., Li et al., 2021). Food delivery service has been widely studied as contactless services become more essential after the pandemic (Choe et al., 2021). Brewer and Sebby (2021) indicated that innovative online menu attributes, such as menu visual appeal, would be an effective approach to improve restaurants' customer purchase intention. Flexibility monitoring is essential for the restaurant sector to cope with chaos and uncertainty. As noted previously in this study, restaurant practitioners need to take a holistic approach to deal with the COVID-19 pandemic, and there is necessity for the industry practitioners to co-operate with multiple stakeholders to effectively face the challenges of the pandemic. This study offers valuable directions for industry practitioners to revise their marketing strategies for the pandemic from a holistic perspective. In particular, this study proposes that an appropriate combination of strategies from five themes (pandemic prevention and control, cooperation with third parties, customer service innovation, product innovation, and innovative marketing strategy) can lead restaurant enterprises to make the right decisions. These strategies should also be prioritized by industry practitioners based on their specific situations.

Furthermore, this study identifies five critical, innovative activities. Cooperation appears to be the most vital and frequently performed activity for innovative crisis management practices. It is identified in the COVID-19 prevention process in the restaurant industry. Several measurements, such as continuing social distancing measures, environmental disinfection, and employee training, need multi-parties to understand the importance of pandemic prevention and have the same perceptions of each party's responsibility. Sincere communication and cooperation with employees and customers will maintain an honest and reliable business image. Next, production innovation practices, such as smaller dishes campaigns and changing raw materials, have challenged customers' traditional dining experience. The intention of innovation needs to be fully explained and gain external parties' support.

Meanwhile, innovative marketing practice and customer service practice need deep cooperation with external parties, such as communities, e-commerce platforms, and suppliers. Cooperation can be considered as the fundamental factor influencing the resilience capacity of restaurant enterprises. The challenging circumstances make the industry practitioners spontaneously deepen the network of relationships, develop bonds with third parties, and exchange resources to gain mutual benefit and competitive advantage.

And lastly, restaurant enterprises need to recognize the critical role technology plays in achieving and improving crisis resilience. This study shows that technology has been applied in various business operation procedures of the restaurant industry, such as customer relationship management, restaurant robotization, digital sales-platform construction, and product innovation. Digital technologies, such as artificial intelligence (AI), big data, cloud computing, blockchain, and 5G, have effectively assisted China in the pandemic monitoring and resource allocation (Qi, 2020). According to Schumpeter's innovation theory, Kwok and Koh (2020) also indicate the application of extended reality in the tourism industry would be catalyzed by the global response to the COVID-19 pandemic. The restaurant enterprises should assess their technological needs and adopt the relevant technologies to accelerate innovation's pace and scope.

6. Limitation and future research

Despite this study's theoretical and practical contributions, several limitations need to be pointed out, and caution should be exercised when interpreting the results. Although this study provides an innovative crisis management framework for the restaurant industry, the framework's innovative themes may be sensitive to different countries-different innovative practices may be carried out in various global markets. Second, although various innovation activities, such as labor sharing and robust measures to help maintain employee safety, were identified from the China's restaurant industry practices (Please see the Appendix), the study of the role of employees in the theoretical framework is considerably limited. In addition, the performance of the innovative activities of Chinese restaurant enterprises summarized in this study may evolve over time, which could indicate that the impacted factors on the resilience process may keep developing over time. Therefore, this study creates a reasonable starting point for future research of the resilience process of post-COVID-19 in the restaurant industry. There is a need for future studies to test and develop models and frameworks related to the COVID-19 pandemic to evaluate the performance of crisis management and the innovative practices in the restaurant industry. Several directions are proposed:

- Examining the proposed crisis management framework in different cultural and social contexts.
- Phenomenological approaches to analyze and compare the efficiency of the innovative crisis model of this study in various types of restaurants (e.g., small independent restaurant vs. luxury restaurant)
- Identify the employee compliance process after COVID-19 within the context of the innovative crisis model.
- Quantitative testing the proposed crisis management model with real field data.

These research approaches may offer additional insights into the COVID-19 pandemic assisting the restaurant industry to suit the uncertain economic environment. This may help the industry to understand changes and manage the business in a holistic approach, potentially eliminating the impacts of COVID-19 and future potential crises on the restaurant industry.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jhtm.2021.04.001>.

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