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Effects of COVID-19 on hotel marketing and management: a perspective article

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Abstract

Purpose – This paper aims to discuss the effects of COVID-19 on hotel marketing and management practices and outlines a three-pronged research agenda to stimulate knowledge development in the hotel sector.

Design/methodology/approach – This paper is based on an overview of the relevant literature on hotel marketing and management and the hotel guest behavior. The authors also investigated hospitality service trends to propose a research agenda.

Findings – This paper presents a research agenda from three dimensions – artificial intelligence (AI) and robotics, hygiene and cleanliness and health and health care. First, different types of AI (mechanical, thinking and feeling) might open up distinct research streams at the intersection of health crises and hotel management, in light of the COVID-19 pandemic. Additionally, this paper recommends that researchers move beyond typical perspectives on the antecedents and outcomes of hotel hygiene and cleanliness to delve into guests' perceptions of the cleanliness of specific hotel surfaces. Furthermore, a more in-depth analysis is warranted about the evolving relationship between hotels and the health-care sector.

Practical implications – The recommended research areas are intended to advance the knowledge base to help hotels recover from the COVID-19 pandemic. The suggested research streams are expected to provide actionable insights to promote the development and sustainability of the hotel sector.

Originality/value – This paper appears to be a frontier study, critically examining possible effects of the COVID-19 pandemic on hotel marketing and management practices and how hoteliers may respond to such challenges to recover after this pandemic.

Keywords Artificial intelligence and robotics, Hygiene and cleanliness, Health and health care, Hotel management, COVID-19 pandemic

Paper type Viewpoint

Introduction

The spread of COVID-19 and large-scale travel restrictions continue to wreak havoc on the global tourism and hospitality industry. According to an open letter from Gloria Guevara, President and CEO of the World Travel and Tourism Council, "50 million jobs globally are at risk" because of the pandemic. The letter further indicates that the travel and tourism sector is "already facing collapse" and is "in a fight for survival" due to the COVID-19 global health crisis (Guevara, 2020). Hotels are especially susceptible to reduced tourism and travel along with a slowdown in economic activity (Hoisington, 2020). As events across the globe continue to be cancelled or postponed and hotel occupancy rates plummet, the COVID-19 pandemic has inflicted severe blows on hoteliers worldwide. For example, in February 2020,

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revenue-per-available-room (RevPAR) at Marriott hotels fell by nearly 90% in Greater China and declined by 25% in other parts of the Asia-Pacific region compared with the same period past year (Wallis, 2020). It is predicted that RevPAR in the USA, Europe and Asia will continue to decline as leisure and business travel is delayed or cancelled due to fear of COVID-19 (Courtney, 2020).

The hotel industry is vulnerable to threats posed by unexpected catastrophes such as epidemics, natural disasters and terrorist attacks (Chan and Lam, 2013; Chen, 2011; Jayawardena *et al.*, 2008; Hung *et al.*, 2018; Lo *et al.*, 2006; Min *et al.*, 2009; Paraskevas, 2013; Racherla and Hu, 2009). Different types of catastrophes bring distinct industry consequences and prompt hoteliers to take measures to tackle various challenges caused by crises. For example, hoteliers in Hong Kong introduced toughened security by upgrading the closed circuit television systems and intensifying safety training for hotel employees following the 9/11 attacks (Chan and Lam, 2013). After the severe acute respiratory syndrome (SARS) outbreak, the Korean hotel industry installed new hygiene equipment and offered employees education programs concerning health awareness (Kim *et al.*, 2005). According to Nguyen *et al.* (2017), hotels at a coastal destination in Japan provided accommodation, refuge and provisions to evacuees when this region was devastated by the 2011 Great East Japan Earthquake and Tsunami. In this paper, we focus on epidemics: as tourists' concerns about security and health risks increase, epidemics can directly affect individuals' travel behavior (Mao *et al.*, 2010). It is thus essential for hoteliers to address changes in consumer demand following the unexpected COVID-19 pandemic and restore travelers' confidence. As the COVID-19 crisis is likely to have unprecedented effects on hotels around the world, researchers should work to strengthen theory and knowledge in this crucial hospitality sector to help hotels become more resilient and achieve effective post-disaster recovery.

Based on a review of literature on the effects of large-scale public health crises (e.g. SARS in 2003) and the current trends in the hotel industry, this paper details specific areas to provide insights for academics and practitioners to navigate hotel marketing and management after the COVID-19 pandemic. First, hotel operators are beginning to pay closer attention to the potential benefits of artificial intelligence (AI) and its applications, such as robotics, in hotel management practices (Zabin, 2019). An increasing number of studies have focused on hotel-related impacts of AI and robotics at the individual and organizational level (Li *et al.*, 2019; Lu *et al.*, 2019; Tussyadiah, 2020; Wing and Tung, 2018). In addition, given the role of social distancing as an effective prevention strategy against COVID-19, adopting AI and robotics in hotels – especially in high-contact scenarios – can help to protect guests and frontline service employees. Therefore, we focus on AI and robotics as a theme in hotel management and marketing post-COVID-19.

Second, hygiene and cleanliness are essential to successful hotel operations and have garnered increased attention after public health crises such as the 2003 SARS outbreak (Kim *et al.*, 2005). Specifically, hygiene and cleanliness have been widely discussed in terms of the hotel industry recovery (Chien and Law, 2003; Henderson and Ng, 2004; Lo *et al.*, 2006). Studies show that customers are influenced by hygiene and cleanliness conditions when making purchase decisions in a service environment (Choi, 2019; Hecht and Martin, 2006; Hoffman *et al.*, 2003; Vilnai-Yavetz and Gilboa, 2010; Zemke *et al.*, 2015). Hygiene and cleanliness issues have been considered in pandemic outbreaks as a culprit of disease (Alan *et al.*, 2016). Thus, when predicting the hotel industry's recovery post-COVID-19, hygiene and cleanliness must be focal points given the severe effects of this pandemic and hotel guests' higher safety-related expectations during travel.

Moreover, according to Wen *et al.* (2020), health will be a key influencing factor in the tourism and hospitality industry recovery after the COVID-19 outbreak due to the residual fear associated with this pandemic and similar diseases. Similarly, Chen *et al.* (2007) reported that during the 2003 SARS outbreak, public health-care facilities played imperative roles in pandemic prevention and control. As COVID-19 has led to more than 3 million cases and 215,000 deaths (Johns Hopkins University, 2020), hotel-based health-care facilities can reassure guests in the event of an emergency during travel. Essentially, this article discusses the possible effects of COVID-19 on hotel marketing and management practices and outlines a research agenda from three dimensions – *AI and robotics*, *hygiene and cleanliness* and *health and health care* – to encourage research and knowledge development in the hotel sector.

Artificial intelligence and robotics

In the wake of the COVID-19 pandemic, there is much room for scholars to enhance understanding of AI and AI-driven robotics and to advance literature in this area (e.g. Davenport and Ronanki, 2018; Huang and Rust, 2020; Mariani and Perez Vega, 2020). COVID-19 is highly contagious via person-to-person transmission (Chan *et al.*, 2020) and people have been urged to decrease personal contact and increase physical distance (WHO, 2020a). The COVID-19 outbreak can thus be expected to accelerate the penetration of AI and robotics technology into the hospitality industry. Specifically, more hotels are likely to adopt "unmanned" devices and use robots to provide completely contactless service. It is anticipated that robot receptionists, facial scan check-ins, voice guest control, robot delivery, robot concierge assistants and other contactless services will begin to replace human-to-human contact services in the near future.

The shifting hotel service landscape offers an opportunity for hoteliers to better serve and delight guests in innovative ways through AI and robotics (Huang and Rust, 2018). The application of AI and robotics in hotels represents a new service concept (Kuo *et al.*, 2017) and an emerging research field (Tuominen and Ascencao, 2016). Studies have discussed AI and robotics usage in hotels from various perspectives. For example, Kuo *et al.* (2017) indicated that service innovation using robots can improve hotels' sustainable competitiveness. They further identified six factors that could influence the development of service robots for the hotel industry: government support, market development and development of the robotics industry, as well as hotels' capabilities for technology development, raising money and talent development (Kuo *et al.*, 2017). Li *et al.* (2019) approached this phenomenon from a microscope by focusing on hotel employees. They found that workers' AI and robotics awareness had a significantly positive effect on turnover intention; this relationship was moderated by perceived organizational support and a competitive psychological climate (Li *et al.*, 2019). Regarding the effects of AI and robotics on travelers' experiences, Tung and Law (2017) identified future research directions pertaining to the consumer experience with human-robot interaction.

Despite recent accomplishments, researchers should dive deeper into the applications of mechanical AI, thinking AI and feeling AI for service delivery, service creation and service interaction at hotels (Huang and Rust, 2020). More specifically, different types of AI (mechanical, thinking and feeling) might open up distinct research streams at the intersection of health crises and hotel management, in light of the COVID-19 pandemic. The present paper recommends that researchers investigate how mechanical AI can be used in hotels to transform routine and repetitive human services to contactless services at hotel frontlines. In the context of COVID-19 and similar health crises, mechanical AI can be adopted in hotels to complete cleaning and sanitization tasks or to assist hotel staff's duties.

For example, robots can monitor the cleanliness of high-traffic areas, such as the amount of dirt or debris in hallway corridors and elevators, to alert the cleaning staff of locations in need of attention. From this perspective, it would be worthwhile to unearth the thoughts and feelings of hotel guests when they receive more contactless services while having fewer opportunities to obtain human-based services. Areas to address in the future also include how cleaning and disinfection procedures of hotel properties could be carried out effectively by AI-driven robotics and how to develop robot-friendly hospitality facilities for AI-driven robotics to perform their tasks.

Given the increasing complexity in the traveler's demand following the COVID-19 outbreak (Wen *et al.*, 2020), forthcoming research could investigate why deep learning is essential for hotel service personalization and how big data and analytical AI can be used to capture the individual differences in service preferences (Huang and Rust, 2020; Mariani, 2019; Mariani *et al.*, 2018), for example, regarding the criteria for sanitization and cleanliness. Hoteliers should seek to harness the power of big data to establish or maintain competitive advantages through personalized customer service (Mariani, 2019; Mariani *et al.*, 2018; Mariani and Perez Vega, 2020). As the use of thinking AI expands in the hotel sector, the domain of business intelligence and big data-driven analysis should be advanced in the hotel sector because data is the raw material on which AI is built (Mariani, 2019; Mariani *et al.*, 2018; Mariani and Perez Vega, 2020). One research direction in the specific context of epidemics is how hotels could generate real-time data to develop a prediction and alarm system of infectious diseases based on big data and analytical AI in collaboration with computer and data scientists.

Similarly intriguing are the drivers and barriers of AI adoption in different types of hotels and among specific customer segments. As AI applications can be perceived as either facilitating or complicating service interactions (Mariani and Perez Vega, 2020), the success of these innovations relies heavily on the individual customer's relationship with technology (Wen *et al.*, 2020b). Moreover, as the COVID-19 pandemic and its consequences have led to fears, worries and anxiety among travelers, it is especially important to show empathy and understanding in hotel services and to delight customers (Jiang, 2019) during this challenging period. Therefore, a greenfield for research is to explore what role feeling AI would play for customer care in hotels, as well as how feeling AI could assist human service employees to deliver personalized services and develop personalized relationships with hotel guests.

Considering that positive and negative possibilities might co-exist around AI in hotel services, scholars should assess hotels' return on investment relative to service robot development (Kuo *et al.*, 2017), hotels' resilience in a robot-based economy, and the ethics of using AI and AI-driven robotics to provide hotel service. The current paper also calls for research into the influence of AI on the dynamic capabilities of a hotel when confronted with a public health crisis such as the COVID-19 pandemic. Regarding the impacts of AI on hotel guests, the nuanced effects of such technologies on hotel guests' experiences following a public health crisis, such as the boundary conditions that could shape AI-guest value co-creation and co-destruction, deserve more attention.

As AI is increasingly replacing human labor, more employees may lose their jobs and customers may have different experiences when served by AI-driven robotics rather than human service employees (Huang and Rust, 2018). However, the effects of automation on hotel employees and customer service depend on the types of AI used. Process automation, which generally includes behind-the-scenes processes such as updating customer files with information from IT systems, is relatively simple to implement and should not pose great threats to the hotel workforce (Davenport and Ronanki, 2018). Cognitive insights can be useful for predicting consumer behavior (e.g. based on the transaction history). Innovations centered

around cognitive engagement, such as AI agents and personalized recommendation systems, have the potential to change the "face" of hospitality service but need to be implemented incrementally to avoid delivery failure (Davenport and Ronanki, 2018). Given these trends in the hotel marketing and management practice, it is crucial for future research to investigate the role that process automation, cognitive insight and cognitive engagement might play in helping hotels address challenges posed by public health crises and discuss how hotels should use AI solutions to deal with consequences caused by epidemics.

Hygiene and cleanliness

The importance of hotel cleanliness and hygiene has become particularly salient as of late because COVID-19 can be spread by touching surfaces contaminated with the virus (WHO, 2020b). Hotel surfaces are likely to be dirty, contain higher microbial counts and yield potential sources of disease transmission (Park *et al.*, 2019). In addition, aerosol transmission via central air conditioning could be another route of COVID-19 infection (Zhang *et al.*, 2020). Due to the COVID-19 outbreak, travelers will likely patronize hotels that offer reassuring lodging services and accommodation products in terms of hygiene and cleanliness. To this end, hotels should implement regular hygiene surveillance at facilities via manual (i.e. staff rounds) and automated (e.g. robot-based) practices. Given that cleaning robots nowadays are endowed with sensors measuring the quantity of dust in a specific area of a hotel and either work more on that area or generate data that can be useful for the cleaning teams, future research could investigate how hotel cleaning staff should collaborate with AI-driven robotics to achieve hygiene and cleanliness goals. In addition, hotel restaurants and other departments should emphasize their commitment to safety and hygiene protocols and high housekeeping standards. This assertion appears to be supported by Hung *et al.* (2018) in their research on how hotels in Hong Kong responded to the SARS and H1N1 swine flu crises. In particular, they found that hygiene surveillance at hotel facilities may help mitigate the impact of infectious diseases.

Guestroom cleanliness (e.g. of bedrooms and bathrooms) is a core component of hotel reputation (Gu and Ryan, 2008). Many studies have considered overall hygiene and cleanliness as a principal determinant of travelers' hotel choices (Lockyer, 2005), guest satisfaction (Gu and Ryan, 2008), guest delight (Magnini *et al.*, 2011) and guest loyalty (Barber and Scarcelli, 2010). However, scholars have rarely considered the hygiene and cleanliness of specific areas in a hotel (Park *et al.*, 2019). The present paper thus recommends that researchers move beyond typical perspectives on the antecedents and outcomes of hotel hygiene and cleanliness to delve into guests' perceptions of the cleanliness of hotel surfaces (e.g. key cards, bed linens, light switches and TV remotes) and other areas (e.g. air conditioning systems). As noted, hotel surfaces receiving frequent human contact are more likely to be contaminated through touch (Park *et al.*, 2019) and become sources of transmission of infectious diseases such as COVID-19 (Chen *et al.*, 2020). Areas that are out of hotel guests' reach, such as the central air conditioning system, may also facilitate aerosol transmission of viruses (Zhang *et al.*, 2020). A more granular understanding of hotel cleanliness will assist hoteliers in streamlining their housekeeping procedures to ensure effective cleaning and sanitization of hotel properties.

Given the growing consumer demand for hotel hygiene following the COVID-19 outbreak, enhanced cleanliness and sanitization to prevent or limit the spread of disease can be promoted as a selling point during and after this pandemic. Zemke *et al.* (2015) found that younger travelers and women of all ages would be willing to pay a premium for enhanced guestroom disinfection. Based on their work, forthcoming research should examine whether different hotel guest segments' willingness to pay a premium for enhanced sanitization has

changed amidst the COVID-19 pandemic. Additionally, as a higher level of cleanliness may require investments in technology, equipment and resources, future studies should also consider to what extent different types of hotels should improve their sanitization practices.

The notion of hygiene can extend beyond sanitization to encompass broader aspects of health care. Customers are likely to become more concerned about general health-care access when planning trips following the COVID-19 pandemic, such as how to seek medical care if they fall ill. On a personal level, guests tend to prioritize their health and hygiene, such as through a healthy diet and sleep hygiene, as lines of defense against diseases. Hotel-centric health-care considerations are thus discussed in the following section.

Health and health care

In the midst of the COVID-19 pandemic, many people have begun to reconsider their lifestyles (Wang *et al.*, 2020) and focus on physical and mental well-being. Considering this newly prominent consumer need, helping guests lead a healthy lifestyle could become a post-pandemic trend for hotels. For example, meditation programs, digital detox programs, fitness programs, healthy diet programs, and sleep hygiene programs are likely to become more popular in hotels' marketing mix. Under these circumstances, it appears desirable to further investigate how hotels can design personalized products to enhance guests' well-being and improve the guest experience. Specifically, researchers could consider how to leverage guests' behavioral data and their consumption history (Mariani, 2019; Mariani *et al.*, 2018; Mariani and Perez Vega, 2020) (e.g. types of food ordered, visits to hotel fitness areas, use of in-house spa/wellness services) and harness predictive analytics to develop customized, health-focused amenities.

Human health originates from the health of nature. The COVID-19 pandemic has forced humans to acknowledge the importance of nature and the ecosystem (Zhou *et al.*, 2020). It is predicted that environmentally friendly forms of tourism, such as eco-tourism and slow tourism (Oh *et al.*, 2016; Xu *et al.*, 2017), will become more popular after the COVID-19 pandemic, as these travel forms contribute to environmental sustainability and harmony between people and nature. Accordingly, hotels should accommodate this public sentiment by formulating eco-friendly strategies and green practices in response to travelers' concerns for the environment (Balaji *et al.*, 2019). On an aggregate level, studies should seek to extend the literature on guests' perceptions of green hotel attributes, by investigating why and how these perceptions differ across hotel categories and travel purposes (Balaji *et al.*, 2019). There is also a need to explore opportunities for hoteliers to collaborate with guests in co-creating the green value (Jiang *et al.*, 2019).

Due to the global health crisis caused by COVID-19, travelers are now likely to pay more attention to the availability and quality of medical facilities when making travel decisions. This consumption need is especially pertinent for hotel properties in gateway cities, particularly those receiving frequent convention businesses. In this sense, key areas to be addressed by future research include how hoteliers should design marketing communication content and use marketing communication tactics to showcase their abilities to protect guests from public health crises, assure guests of health and safety during their stay and make them feel more at ease following the COVID-19 outbreak. Additionally, in a public health crisis such as the COVID-19 pandemic, the virus is transmitted not only between guests and hotel service employees but also between guests themselves. Hence, a future research direction centers around whether and why technology such as AI and AI-driven robotics could guarantee social distancing among hotel guests in times of epidemics, as well as how hotels could institute effective physical distancing measures among guests.

Relatedly, research has delineated the various attributes and benefits of medical hotels that specialize in providing health-care services in a hotel setting by offering medical resources, hospital facilities and aesthetic services (Han, 2013; Han *et al.*, 2015; Han and Hwang, 2013). In this vein, it would be worthwhile to explore how certain medical hotel attributes (e.g. staff members with expert health-care knowledge) can be incorporated into other types of hotels to offer greater value for guests. It is also worth considering whether these healthcare-related features might influence the traveler's decision-making process and how such influences may vary sociodemographically. Furthermore, given the potential importance of hotels in disaster risk management, a more in-depth analysis is warranted about the evolving relationship between hotels and the health-care sector. For example, researchers could gather empirical evidence from various stakeholders and discuss the feasibility and effects of using hotels as quarantine sites during a public health crisis. This assertion aligns with Nguyen *et al.* (2017) in their study about the collaboration between the hotel industry and local government for disaster risk reduction in coastal destinations. Specifically, their research reveals that hotels can contribute to disaster risk management by offering evacuation sites and short-term refuge.

Conclusion

The global panic associated with COVID-19 may have enduring consequences on travel. Effective strategies are necessitated to boost travelers' confidence and to help businesses recover in a timely manner after this public health crisis. The hotel industry's resilience and sustainability can be solidified by addressing diverse consumption needs and taking steps to transform adversity into opportunity. These efforts align with projected trends in market demand, such as traveler wellness, contactless services and environmental conservation. Hotels' courses of action related to this pandemic and the dynamic market demand reveal several areas where professional knowledge should be advanced. By reflecting upon evolving traveler expectations and industry recovery programs, academia can contribute to theory development in hotel marketing and management to foster positive changes in industry practices after this pandemic.

The research agenda proposed in this article is not exhaustive but indicates numerous ways in which COVID-19 is anticipated to affect the hotel industry, including AI and robotics, hygiene and cleanliness and health and health care. It is important for scholars to take a critical view and develop insights into the opportunities and challenges in each of these domains. The availability of big data and emerging techniques such as text mining and image analytics could lead to new approaches for capturing data from stakeholders, especially hotel guests. Future studies should consider the use of big data and analytics with respect to AI, hygiene and health-care practices in hotels and other hospitality contexts to address the ongoing digital transformation in the industry (Mariani, 2019; Mariani *et al.*, 2018; Mariani and Perez Vega, 2020). Moreover, forthcoming research should harness the power of big data and analytics to shed light on a multitude of issues at the intersection of the three areas identified, namely, AI and robotics, hygiene and cleanliness and health and health care. Big data applications show promise in various settings but also pose challenges (Davenport and Ronanki, 2018; Mariani, 2019; Mariani *et al.*, 2018; Mariani and Perez Vega, 2020). Therefore, it would be worthwhile to examine how technology-based approaches should be rolled out in hotels to minimize possible service disruptions and avoid service failure that could compromise guest loyalty.

Apart from the themes discussed above, crisis management is another important topic requiring further investigation. As hotels are a prominent victim of pandemics, it is necessary to examine how hotels should establish contingency plans for infectious disease

control. There is also a need for future research to evaluate different approaches via which hotels could work with governmental agencies to develop coordination mechanisms and comprehensive crisis management schemes.

The COVID-19 outbreak has disrupted the functioning and even survival of hotels around the world. It is time for scholars and practitioners to carefully examine the impacts of this crisis and seek to enhance industry practices. Empirical data collected from key stakeholders could assist scholars in exploring and critiquing phenomena of interest to make predictions accordingly. To gather data to address the issues raised in this article, future research may include focus-group discussions, in-depth interviews, surveys, scenario-based experiments, digital analytics or a mixed-methods approach, depending on a study's research objectives. In summary, the shifts in traveler behavior and hotel marketing and management practices caused by COVID-19 call for close academic attention. It is our hope that the research lines detailed herein will illuminate relevant topics of interest and inspire further study.

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