The effects of COVID-19 on restaurant industry: A perspective article.

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Abstract
This paper aims to discuss the impacts of COVID-19 on restaurant marketing and management practices and outlines a three-pronged research agenda to stimulate knowledge development in the restaurant sector. This paper is based on an overview of the relevant literature on social media in food advertising. The authors also investigated trends in hospitality services to suggest a research agenda. This paper presents a research agenda in three dimensions - Artificial Intelligence (AI) and digital media ads and the importance of social media ads during Covid-19. First, different types of artificial intelligence (mechanical, thinking and feeling) may open distinct research streams at the intersection of health crises and restaurants, in light of the COVID-19 pandemic. In addition, this paper recommends that researchers move beyond typical perspectives on precedents and the results of restaurant cleanliness and cleanliness to delve into. Moreover, to help restaurants recover from the COVID-19 pandemic. The proposed research streams are expected to provide actionable insights to promote development and sustainability in the restaurant sector. Authenticity / Value - This paper appears to be a frontier study, looking critically at the potential impacts of the COVID-19 pandemic, the impacts of COVID-19 on the restaurant industry and how restaurant owners can respond to such post-pandemic recovery challenges.

Keywords
Social media, digital media ads, artificial intelligence, restaurant sector, COVID-19 Pandemic.

Article History
Accepted: 9 October 2020

1. Introduction
Coronaviruses depicted as a dark swan occasion and compared to the financial scene of World War II; the predominance of COVID-19 had a negative impact on worldwide wellbeing care frameworks with a multiplier impact on each perspective of human life as we know it. Pareek et al., (2020) COVID-19 as propelled in December 2019 in Wuhan, which is in Hubei Territory, China. The infection proceeds to spread all through the world. In spite of the fact that the episode was at first in China, with cases too detailed in China or in nation travelers, cases are presently detailed in numerous other nations. Whereas a few nations have overseen to viably report the detailed cases, dubious where and when modern cases will develop (Bai et al., 2020). In the midst of an imperative gathering of people the wellbeing dangers COVID-19 presents to the world, the World Wellbeing Organization (WHO) has pronounced open wellbeing crises of worldwide concern to arrange internationalism, the impacts of the illness surpassing passing (those who pass on) and dreariness (those who cannot work for a period of time) are getting to be apparent Since the episode. In the midst of the Chinese lull of the economy with the intrusion of generation, the work of worldwide supply chains has been suspended (Razai et al., 2020).

In late January 2020 to July 2 2020, the COVID-19 widespread spread quickly to the Joined together Kingdom, the result was that 283,757 affirmed cases and 43,995 affirmed passings (Our world in information 2020), which has driven to a few open wellbeing measures planned to contain its spread, such as social break, that briefly decrease financial action since companies and families are incapable to create and spend as they more often than not do. Powerless
worldwide financial movement includes to these impacts, diminishes trade request and disturbs worldwide supply chains (Pareek et al., 2020). As a result, corporate and family pay has diminished. Expanded instabilities, decreased certainty and fixed money related and credit conditions can open up beginning decreases in investing and generation. For illustration, families may offer more as a safeguard, and a few companies may lay off specialists and offer capital hardware. Whereas the movement must recuperate with the lifting of social prohibition measures, there may be long-term impacts of “scarring” on the economy, in spite of the fact that extraordinary measures by governments and central banks to medium flattening will offer assistance diminish this. According to Mulyanegara, Tsarenko and Anderson, (2009) these effects on supply and demand will partially determine the effect of Covid-19 on inflation. The impact is largely uncertain, given the sharp changes in demand, the partial closure of some industries, and the significant differences in experience across sectors. Excess capacity may be less than usual. During periods of weak demand, the recession increase may not be fully reflected in the lower costs of companies, if some fixed costs such as rent remain unchanged, and external cost pressures, such as movements in the exchange rate and commodity prices, will affect inflation. GDP growth is expected to decline to -6.5% in 2020.

On the other hand, with events around the world still being canceled or postponed, hotel occupancy rates dropping, and quarantines, the COVID-19 pandemic is taking a heavy toll on restaurant owners around the world. For example, in March 2020, Revenue for all reservations at Marriott hotels decreased by about 90 percent in Greater China and decreased by 25% in other parts of the Asia-Pacific region compared to the same period last year, which had a significant impact on the restaurant sector (Wallis, 2020). Room yield is expected to be available in the USA, Europe and Asia it will continue to decline as leisure travel and work are postponed or canceled due to fear of COVID-19 (Courtney, 2020).

The restaurant industry is vulnerable to threats posed by unforeseen disasters 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 disasters lead to distinct industrial consequences and induce restaurant owners to take measures to face the different challenges caused by crises. For example, restaurant owners in Hong Kong introduced increased security measures by modernizing CCTV systems and intensifying safety training for restaurant employees after the 9/11 attacks (Chan and Lam, 2013). After the outbreak of Severe Acute Respiratory Syndrome (SARS), the Korean restaurant industry installed new hygiene equipment and provided employees with health awareness educational programs (Kim et al., 2005). According to Nguyen et al. (2017). In this paper, we focus on epidemics: with increasing tourist concerns about security and health risks, epidemics can directly affect individuals’ travel behavior (Mao et al., 2010). Hence, it is imperative for restaurant owners to address changes in consumer demand in the wake of the unexpected COVID-19 pandemic and restore travelers’ confidence. As the COVID 19 crisis is likely to have unprecedented impacts on restaurants around the world, researchers must work to advance theory and knowledge in this important hospitality sector to help restaurants become more resilient and achieve effective post-disaster recovery.

Based on a review of the literature on the impacts of large-scale public health crises (such as SARS in 2003) and current trends in the restaurant industry, this paper details specific areas to provide insights for academics and practitioners to navigate the restaurant industry’s commercialization and following the COVID-19 pandemic. First, restaurant operators are beginning to pay more attention to the potential benefits of artificial intelligence (AI) and its applications, such as robotics, in restaurant management practices (Zabin, 2019). An increasing number of studies have focused on the restaurant-related impacts of AI and robotics at the individual and organizational level (Li et al., 2019; Lu et al., 2019; Tussyadiah, 2020). Additionally, given the role of social distancing as an effective preventive strategy against COVID-19, the adoption of artificial intelligence and robots in restaurants - especially in high-contact scenarios - can help protect guests and frontline service personnel. Therefore, we focus on artificial intelligence and robotics as a topic in restaurant management and marketing after COVID-19.
2. Artificial intelligence in the restaurant sectors

In the wake of the COVID-19 pandemic, there is ample room for researchers to advance the understanding of AI-driven robots and AI and advance literature in the field (e.g., Davenport and Ronanki, 2018; Huang and Rust, 2020; Mariani and Perez Vega, 2020). COVID-19 is severe. Infection by person-to-person transmission (Chan et al., 2020) and people have been urged to reduce personal contact and increase physical distance (WHO, 2020a). Thus, the COVID-19 outbreak is expected to accelerate the penetration of artificial intelligence and robotic technology in restaurants. Specifically, more restaurants are likely to use "unmanned" devices and use robots to provide a completely contactless service. Robot receptionists, face checks, guest voice control, robot deliveries, robotic concierge assistants and other contactless services are expected to begin replacing human communication services in the near future.

Moreover, the changing restaurant service landscape provides an opportunity for restaurant owners to better serve and delight guests in innovative ways through artificial intelligence 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 area of research (Tuominen and Ascencio, 2016). Studies have discussed the use of artificial intelligence and robots in restaurants from different perspectives. For example, Kuo et al. (2017) indicated that service innovation using robots can improve restaurants’ sustainability and competitiveness. They also identified six factors that could influence the development of service robots for the restaurant industry: government support, market development and robotics industry development, as well as hotel capabilities for technology development, fundraising and talent development (Kuo et al., 2017). Lee et al. (2019) deal with this phenomenon through a microscope by focusing on restaurant employees. They found that workers’ awareness of AI and robotics had a significant positive effect on employee turnover intent; This relationship was managed through perceived organizational support and a competitive psychological climate (Li et al., 2019).

In spite of recent achievements, researchers must dive deeper into applications of mechanical AI and think about artificial intelligence and sense of artificial intelligence for service delivery, service creation and service interaction in restaurants (Huang and Rust, 2020). More specifically, different types of AI (mechanical, thinking and feeling) may open distinct research streams at the intersection of health crises and hotel management, in light of the COVID-19 pandemic. This paper recommends researchers investigate how mechanical artificial intelligence is using restaurants to transform routine and repetitive human services into frontline contactless services for restaurants. In the context of COVID-19 and similar health crises, mechanical AI can be adopted in hotels to complete cleaning and sanitizing tasks or to aid restaurant employee duties.

For instance, robots can monitor the cleanliness of high traffic areas, such as the amount of dirt or debris in driveways and elevators, to alert cleaning personnel to locations that need attention. From this perspective, it will be helpful to uncover the thoughts and feelings of restaurant guests as they receive more contactless services with fewer opportunities for access to human-based services. Areas that must be addressed in the future also include how cleaning and disinfection procedures for restaurant properties can be effectively implemented with AI-driven robots and how to develop robotic-friendly hospitality facilities for AI-driven robots to perform their tasks. Given the increasing complexity of traveler demand after the COVID-19 outbreak (Wen et al., 2020), upcoming research could investigate why deep learning is important to personalize restaurant services and how big data and analytical AI can be used to capture an individual. Differences in service preferences (Huang and Rust, 2020; Mariani, 2019; Mariani et al., 2018), for example, regarding sterilization and hygiene standards. Restaurant owners must strive to harness the power of big data to create or maintain competitive advantages through personalized customer service (Mariani, 2019; Mariani et al., 2018; Mariani and Perez Vega, 2020). With the expansion of the use of AI thinking in the restaurant sector, the field of business intelligence and big data-based analysis should be developed 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 the way hotels can generate real-time data to develop an infectious disease prediction and warning system based on big data and analytical artificial intelligence in
collaboration with computer and data scientists. And between specific customer segments. Since AI applications can be viewed as either facilitating or complicating service interactions (Mariani and Perez Vega, 2020), the success of these innovations depends heavily on the individual customer’s relationship with the technology (Wen et al., 2020b). Moreover, given that the COVID-19 pandemic and its consequences have created fears, anxieties and anxieties among the guests, it is especially important to demonstrate sympathy and understanding in catering and customer happiness (Jiang, 2019) during this challenge period. Therefore, a new area of research is to explore the role that AI sense will play in nurturing customers in restaurants, as well as how AI can help sense of human service personnel to provide customized services and develop personal relationships with catering. Given that positive and negative possibilities may coexist around AI in catering services, scientists should evaluate restaurants’ return on investment in terms of developing service robots (Kuo et al., 2017), restaurant resilience in the robot-based economy, and the ethics of using robots that rely on artificial intelligence and artificial intelligence to provide hotel service. The current paper also calls for research into the impact of AI on the dynamic capabilities of restaurants when faced with a public health crisis such as the COVID-19 pandemic. Regarding the effects of AI on hotel guests, the subtle effects of these technologies on guest experiences in restaurants in the wake of a public health crisis, such as border conditions that can shape the value of a guest’s co-creativity and shared destruction, deserve more attention.

3. Digital Media Advertising

Today’s new trends in marketing and advertising have revolutionized the entire world. Social media enabled marketers to reach and persuade potential audiences effectively. The possibility of person-to-person communication around the world also enabled the audience to choose content of choice. (Al-Shibli et al., 2019) They seek out information, act on it and stay informed (Nadaraja & Yazdanifard, 2013). Moreover, traditional means of marketing and advertising were expensive with limited access (Alghizzawi et al., 2018) They were focusing on old strategies and reaching the vast audience was difficult (Alnawafleh et al., 2019) due to the social media, approach. Marketing has changed, introducing many new technologies that are very effective and convincing to the public (Hajli, 2015). A study conducted by Gilbody et al., (2005) examined how consumers access health care advertisements and to what extent they follow healthy lifestyle guidelines. The researcher used an influenza sponsorship-based banner ad and preferred a Qualtrics survey using Amazon Mechanical Turk (MTurk). The results revealed that advertising on social media was significantly associated with positive healthcare behavior. Respondents revealed that these ads had a potential impact because the message was direct, simple and compelling

With them. Moreover, Habes et al., (2020) investigated the effectiveness of social media ads on potential customer behavior in India. The researchers n = 504 used well-structured questionnaires and used an appropriate sampling method. The results revealed that the use of certain digital marketing strategies helped attract many consumers from all over the country. These strategies may include: choosing better distribution channels, training the marketing team and using opinion leaders, convincing the public of the appropriate decision. This is because social media has become influential source of information exchange and behavioral changes. Due to the rapidly increasing number of technologies, the audience can actively access various social networking sites. Here we can assume the role of social media ads as being very compelling and appealing to the potential audience which keeps them updated on the various phenomena (Hughes et al., 2012).

Another study examining the effectiveness of social media advertising was conducted by Habes et al., (2020) in which they investigated the main determinants of effectiveness in relation to social media advertising in India. The researcher selected Twitter, Facebook, and other social network platforms for the purposes of the study. Moreover, they used n = 504 structured questionnaires using an appropriate sampling technique. The results revealed that the use of more technical and strategic tactics made social media ads effective for audiences. Moreover, good planning and economic measures were the two main factors that added effectiveness of social media advertising.

Marketing allowed the audience to reach the idea and products. They also collect information and make appropriate decision accordingly (Saura, 2020). To further validate this, the researcher selected Facebook, Instagram, Google and
YouTube users from Bangladesh. Data collected using \( n = 306 \) questionnaires indicated that social media affected the behavior of the majority of respondents. In this regard, the researchers also found that social media marketing also influenced the opinion-making and decision-making process of potential consumers. As also witnessed by (Kathiravan, 2019), social media marketing and advertising are well planned, organized and based on effective strategies. Because of its wide reach, social networking sites are preferred at both private and government levels. To further study the effectiveness of social media advertising, the researcher selected a sample of \( n = 400 \) participants from Tamil Nadu, India. The results indicated that the majority of respondents held a very positive opinion of the effectiveness, objectivity and relevance of the ads. Moreover, they have also considered Facebook as one of the most credible sources of information regarding advertised products.

4. Importance of Social Media Advertisements during covid-19

It emerged as the primary mechanism for assisting and spreading advertising to customers around the world (Vikram-Wipro, 2010). According to (Cash, 2012), social media marketing today includes the improvement of advertising policies related to health awareness, products and campaigns around the world. New media later took over traditional advertising trends that were relatively expensive and limited. To confirm this, the researcher analyzed relevance, impacts, and audience in response to an online advertisement in New Jersey, United States. Data collected from an in-depth interview, content analysis of social networking sites and field surveys showed that study participants highly recognized social media as a source of spreading advertisements. For the majority of respondents, they often prefer digital networking platforms to obtain information about foods, and thus it also greatly helps them to adopt a healthy lifestyle, so many research studies have tried to explore the relationship between the disease awareness campaigns for many restaurants. The importance of disease awareness advertising cannot also be seen by gathering the response of health professionals about these healthcare announcements on various media platforms. For this purpose, Banerjee & Dash, (2013) examined the opinion of various healthcare professionals about disease awareness announcements in India. The primary objective was to document the opinion of medical professionals regarding the quality of online communication activities. The results indicated that the majority of healthcare professionals deemed online healthcare awareness campaigns positive as a constructive step to promoting a healthy lifestyle. However, they also suggested that this awareness should be sponsored campaigns jointly by different nonprofits to increase their effectiveness apart from gaining commercial interests. Also, if the awareness campaigns are adopted by the celebrities, it will achieve more improved results. This is because people today are very concerned about ongoing health issues. For most of them, health issues are an ongoing phenomenon and they want to stay updated about news trends to take advantage of a healthy lifestyle. Besides traditional media platforms, social networking sites also contain ad campaigns that motivate people to adopt a healthy lifestyle. For this purpose, advertisers spend their time and effort on social media and promote masistos who value their health (Sacks and Looi, 2020). For this reason, we assume healthcare advertising is a need today. Especially, through digital media, it is now possible to communicate with people from all over the world. Interactive healthcare marketers are using new media features and sharing healthcare ideas and suggestions. To further validate this, Li et al., (2016) investigate audience behavior and banner ads by MU HealthCare for “influenza season ads.” Data were collected using the Qualtrics survey by recruiting respondents from eleven notable American countries. The results revealed that the announcement of influenza season had strong positive effects on the behavior of potential respondents. Participants expressed that they saw the advertisement first and subsequently made decisions to follow the advertising message for influenza prevention. Moreover, Parrott, R. L et al., (2015) also examined the effects of randomized controlled trials (RCTs) with respect to adopting a healthy lifestyle with appropriate food and exercise. The results revealed that ads were posted for \( n = 265,279 \) times and \( n = 1,024 \) times clicked by users. Total \( n = 505693 \) users saw these ads and the majority of them revealed that the ads were very compelling.
5. Conclusion
The global panic associated with COVID-19 could have lasting consequences for advertising. Effective strategies are essential to boost customer confidence and help restaurants recover in time after this public health crisis. Resilience of the restaurant industry sustainability can be anchored by addressing diverse consumption needs and by taking steps to turn adversity into opportunity in social media platforms. These efforts are in line with expected trends in market demand, such as customer wellness, contactless services and environmental stewardship. Restaurant business paths related to this pandemic and dynamic market demand reveal several areas where professional knowledge must be developed. By reflecting on evolving customer expectations and industry restoration programs, academia can contribute to developing theory in restaurant marketing and management to foster positive changes in industry practices after this pandemic. The research agenda proposed in this article is not exhaustive but rather points to the many ways in which COVID-19 is expected to affect the restaurant industry, including social media, digital media ads, artificial intelligence, it is important for scholars

Taking a critical view and developing insights about the opportunities and challenges in each of these areas. Availability of big data and technologies on social media platforms such as text mining and image analytics can lead to new methods of capturing data from stakeholders, especially restaurant customers. Future studies should consider the use of big data and analytics with regard to AI practices, hygiene and healthcare in restaurants 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, upcoming research should take advantage of the power of social media platforms to highlight the many issues at an intersection

The three identified areas, namely social media, digital media ads, artificial intelligence. Big data applications show promising results in many settings but also pose challenges (Davenport and Ronanki, 2018; Mariani, 2019; Mariani et al., 2018; Mariani and Perez Vega, 2020). Therefore, it would be feasible to study how technology-based approaches should be introduced in restaurants to minimize potential interruptions to service and avoid service.

A failure that might damage the guest’s loyalty. Aside from the topics discussed above, crisis management is another important topic that requires further investigation. Since restaurants are prominent victims of epidemics, they are also essential to examining how restaurants create contingency plans for infectious diseases. The effects of COVID-19 are monitored. There is also a need for future research to assess the different ways in which restaurants can work with government agencies to develop coordination mechanisms and comprehensive crisis management plans. The COVID-19 outbreak has disrupted neighboring restaurants and even the world’s survival.

Conflict of interest
No conflict of interest

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