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Practical Analysis of Long-Term Impacts of Hotels Strategic Responses and How to Overcoming in the Covid-19 Crisis?

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Abstract: ***This study explores the interplay between public measures adopted by the governments to combat COVID-19 and the performance of the hospitality industry. Overall, our findings show that most of the government interventions were associated with a negative response in the returns of the hospitality industry, a response that became more negative as the COVID-19 pandemic evolved. The main research shows that labour actions, especially plans for temporary employment regulations, innovation and differentiation strategies, and reorientation to closer markets and obtaining information from official sources as a guarantee of their certainty, are the measures that have a greater impact on the possibilities of recovering hotel activity. In addition, government measures that contribute to the improvement of the financial situation of firms can also play a relevant role in hotel recovery. The aims to identify the possible shift in importance of hotel choice and satisfaction attributes during the Covid-19 pandemic. To explore a shift of importance, a qualitative thematical analysis was chosen. Further, guest reviews were collected from two major OTAs. The resumption of activities during and after the pandemic, comparing the COVID-19 pandemic with previous public health crises, and measuring the impact of the pandemic in terms of economics. However, the ongoing Covid-19 pandemic has decelerated and changed the hotel industry globally. For many guests, it is the first time, they travel after the hotel industry almost stopped globally, with lockdowns and curfews. A hotel company is interconnected with various partners in the supply chain, thus, the problem in hotel operation is transferred upstream the supply chain. provisions to cope with the new reality, including safety measures, technology application, quality of service, marketing communication, human resource management, and the supply chain management.***

Keywords: ***COVID-19, pandemic, hospitality industry, tourism, systematic, hotel business, safety, WHO, variants, Crisis management, Lockdown, healthcare, hotel management, AI***

I. INTRODUCTION

73% in the number of international tourists worldwide throughout 2020. This collapse in tourist flows will have a greater impact on destinations where international tourism is relatively important. The way in which these crises or disasters should be managed differs between those that are of short duration and those that are long-lasting or even chronic. Regarding the former, it is perhaps where there is actually more evidence in relation to the strategies that managers and even governments should follow for tourist recovery.

Catastrophic events affect the tourism sector by modifying the attractiveness of destinations and discouraging consumers' propensity to travel. Ritchie (2008) points out that tourism is one of the activities most exposed to global risks and is affected by events of all kinds. Therefore, it is crucial for hospitality researchers to investigate how AI device use in service delivery will impact operations, employees, and customers. Furthermore, it is critical to identify the factors, both physical and psychological, that can influence customers' and employees' acceptance of AI device use in service delivery.

Moreover, in the specific case of the hotel sector, tourists may be switching housing alternatives, such as renting apartments, that could be considered safer because they apparently favour social distancing (DuBois & Sanford, 2020). In addition, as Breier et al. (2021) point out, hotel management models that enable social distancing are often introduced. Hence, the business strategies to be followed by hotel managers have to be considered jointly with the demand recovery prospects.

Again, these valuable guidelines assume that hotels are open, and only in some cases the practices are specific to the different phases of the event. Further- more, the actions and strategies followed by hotel managers are not linked with the results obtained, so there is no robust evidence on the effectiveness of each of the types of measures proposed.

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A. The UNWTO (2021) Estimates a Drop of Over

The geographical spread of COVID-19 is not comparable with catastrophes of geological or climatic origin, which are usually limited to smaller geographical areas. For instance, the Indian Ocean tsunami in 2004 affected 18 countries (Sharpley, 2005). Events of a political or terroristic nature, which also have a significant impact on the tourism sector, tend to be limited to smaller geographical areas. It is a country where 53% of tourism is focused on the international market (WTTC, 2020). Among countries it ranks second in income from non-resident tourists and second in entry of international tourists (UNWTO, 2020). The empirical findings reveal that most respondents were willing to pay for risk reduction and action in responding to the COVID-19, although younger residents were willing to pay more for risk reduction. They also argue that residents' WTP is significantly driven by demographic and economic characteristics such as age, income, and tourism employment. While most of these studies have tried to focus on the economic.

Due to the Covid-19 pandemic, the world's economy was shut down almost overnight (UNWTO). The pandemic has confronted the hospitality industry with an unprecedented challenge. Strategies to flatten the COVID-19 curve such as community lockdowns, social distancing, stay-at-home orders, travel and mobility restrictions have resulted in temporary closure of many hospitality businesses and significantly decreased the demand for businesses that were allowed to continue to operate. Almost all restaurants were asked to limit their operations to only take-outs. Restrictions placed on travel and stay-at-home orders issued by the authorities led to sharp decline in hotel occupancies and revenues. However, the reopening process has slowly begun and authorities have started to ease restrictions, for example, allow dine-in restaurants to reopen at a reduced capacity with strict social distancing guidelines, and gradually reduce restrictions on domestic and international travel.

Although many epidemics become pandemic, most of them tend to be known diseases for which vaccines or highly effective treatments are available. In the last twenty years, phenomena that could be comparable to COVID-19 would be the Zika virus in 2015, the Western African Ebola virus in 2013, Middle East respiratory syndrome coronavirus (MERS- Cov) in 2012, Swine flu (Influenza A virus H1N1) in 2009, and the Severe Acute Respiratory Syndrome (SARS-Cov1) in 2003. Although they were widely covered by the media and spread across several countries, they were controlled effectively and did not reach the geographic range of COVID-19.

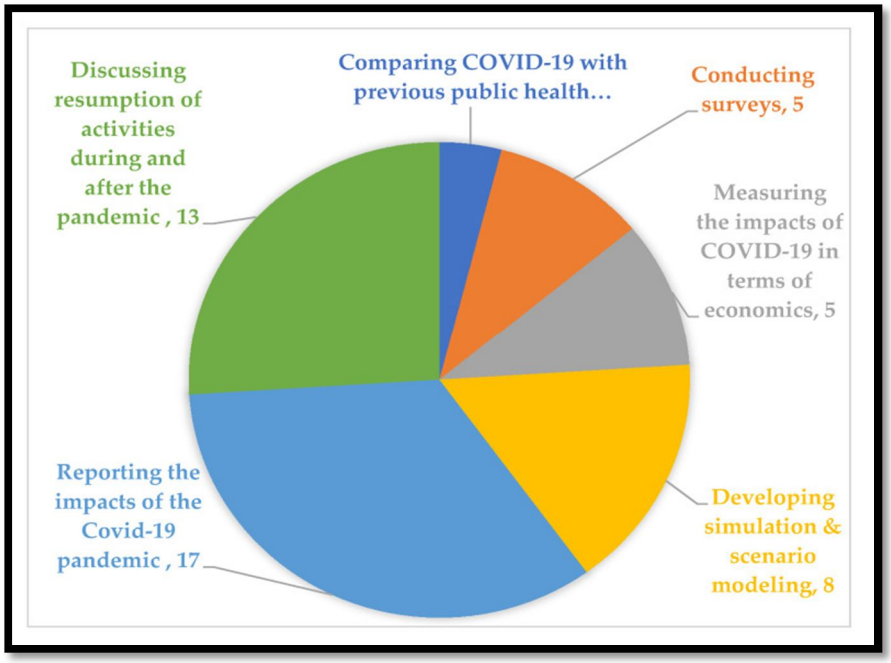

Fig. 1.Evolution of factors in hotels

These statistics highlight the economic importance of travel and tourism to the U.S. economy as well as to the global economy as a whole. During the COVID-19 crisis, governments have taken different measures in the health, public and economic fields. In addition, we extend our examinations to additional firms operating in sectors closely related to the hospitality industry, given the possibility of a spillover effect from the hospitality industry to its close sub-industries.

B. Vulnerability in Hotel Industry

The second relevant contribution consists of determining whether the intensity and the type of strategies carried out by hotel managers have an impact on the results (or at least on their expectations) in terms of hotel occupancy, thus evaluating the effectiveness of the strategies. Much of the existing literature validates the actions and strategies by checking the consistency between preferences and the use made of them. However, this is, to our knowledge, the first time that this question has been raised and analysed in terms of causality.

Third, and although its duration is currently undetermined, it seems that COVID-19 could be globally controlled [9] throughout 2022. This duration is longer than catastrophic events of geological or climatic origin and shorter than those of a political or terroristic nature. The severity of the duration originates from the combination of remaining differential factors. In his approach, he implicitly assumes that hotels will remain operational unless the hotel infrastructure is seriously damaged, and all these measures are aimed at its recovery. On the other hand, when the disaster becomes chronic and strengthens, the survival of hotels may be complex and may initially involve intensifying the strategies aimed simply at avoiding permanent closure. In addition, tourist activity that requires mobility can interfere in the fight against epidemics. In the case of COVID-19, the duration of the epidemic is uncertain, its intensity varies from week to week, there could be restrictions on mobility and establishments may face enforced temporary closure by the authorities to control virus transmissions derived from certain leisure and restaurant activities. This requires a set of strategies that may differ from those used for previous crises.

The hotel industry is vulnerable to threats posed by unexpected catastrophes such as epidemics, natural disasters, and terrorist attacks. Little research has been done regarding safety as a hotel choice attribute. [8] The Covid-19 pandemic increased the awareness ofhealth security or safety in all situations. No research has been done so far on the shiftin importance of safety as a hotel choice attribute during the Covid-19 pandemic. [6]

The remainder of this study is organized as follows. Section 2 presents the scientific background. Section 3 describes the data sources, our research methodology, and the measurement of the variables. Section 4 details the empirical findings, Section 5 discusses policy implications and future recommendations, while the last section provides a summary of the findings.

Therefore, managers' responses to the COVID-19 disaster should be hybrid since the event is between limited in time and chronic. Combined actions and strategies should be taken for the survival of hotels, pre- paring, during the most critical phases, for the recovery of tourist activity at the time of pandemic control —such as the summer season of. Actions will refer to business practices carried out in the initial phases of the epidemic, and they do not respond to any planned strategy.

II. LITERATURE SURVEY

We contribute to the literature in three areas. First, we add to the growing body of research dealing with the impact of epidemics and crises on asset pricing (e.g., [12–15]) by examining the immediate and short-term effect of the COVID-19 outbreak on the price evolution of stocks in the hospitality sector using the event study method. Second, we contribute to the literature dealing with the impact of government interventions and their reflection in asset prices during times of crisis (e.g., [10, 6, 8]) by sorting the intervention into economic (e.g., income support, debt contract relief) and non-economic (e.g., travel restrictions, school closings) measures and exploring their consequences. Overall, the results show that both economic and non-economic interventions imposed on the public can affect the prices of hospitality stocks. The magnitude of the short-term negative effect [3] increases with the timeline of the evolution of the epidemic and the increased level of uncertainty.

The first is that, based on the literature on strategies to be followed by hotel managers during crises and disasters, the possible measures to be taken are adapted to the specificities of COVID-19, differentiating between actions in the most acute phase of the first wave and planned strategies once, as it seemed then, the epidemic was under certain control and allowed some hotel activity. Furthermore, a distinction is made between the measures carried out by managers [10] and those that they consider should be carried out by the authorities.

A. PRISMA Analysis

The systematic review's primary purpose is to identify, summarize, and analyze the findings of all relevant individual studies that are addressing predefined research questions [13]. For the present study, the preferred reporting items for systematic reviews and meta-analyses (PRISMA) are considered for ensuring reliable and meaningful results of the systematic literature review studies. This review is structured as follows: the methodology section discusses inclusion and exclusion criteria and the risk of bias; the results, research approaches used, and discussion sections provide outputs of the literature search and describes the status of the hospitality industry at the time of COVID-19.

To achieve this objective, the following section makes a brief review of the literature on the impact that catastrophic phenomena have on tourist activity and the possibilities of managers to manage crises and disasters. The third section reviews the evolution of COVID-19 and the mitigation strategy followed in Spain in the context of the Spanish hotel sector. The fourth section describes the survey carried out with the managers of Spanish hotels. [7] The managers were asked about their expectations for the recovery of the occupancy levels of their establishments, the actions carried out in the initial stage of the pandemic and the strategies they intended to follow.

The fifth section presents the results of the estimated econometric models that explain the recovery expectations of hotel managers based on the characteristics of their establishments and the actions and strategies that they declared in the survey. The last section presents the conclusions, implications and limitations of the research.

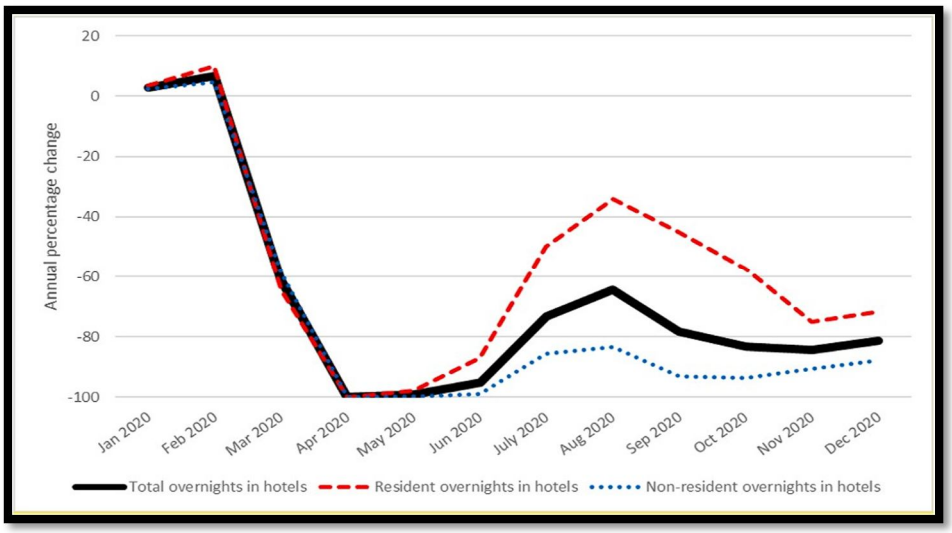

Fig. 2. Evolution of overnights in hotels

Finally, we contribute to the literature dealing with changes in government policy and uncertainty in the stock market (e.g., [3]), by exploring the Granger-causality relationship between uncertainty due to infectious disease and variations in the hospitality stock returns. In addition, we examine how uncertainty reacts to government intervention. The results highlight that the hospitality business is very sensitive to economic uncertainty. When faced with adverse economic conditions, consumers typically tend to postpone using disposable income for travel and tourism in favor of more basic needs [4].

Our main empirical findings documented here show that the major challenge during the spread of COVID-19 was uncertainty. This uncertainty originated in two different, yet related, sources. The first source stemmed from the pandemic itself and the intensified ambiguity about the real consequences for the economy in terms of the time required for economic recovery, the rapidity of the spread of the infection and its lethality. This contention is confirmed using textual analysis of unique data from approximately 3,000 U.S. newspapers.

The second source was related to the uncertainty originating in the government interventions themselves. In this spirit, empirical studies have shown that increased ambiguity about government policy and spending has direct implications for the steady state of many macroeconomic variables such as debt, the GDP and consumption (e.g., [5]).

B. Research Aspects

Only around a quarter of the customers have already dined in a restaurant and only around one-third are willing to travel to a destination and stay at a hotel in the next few months. These findings suggest that customers in general still do not feel comfortable to dine in at a sit down restaurant, travel to a destination and stay at a hotel. Since the breakeven point in the hospitality industry is relatively high due to high operating costs, the survival of many hospitality businesses heavily depends on increasing the demand for their services and products. Thus, figuring out what will make customers return [11] is essential and this requires intensive research efforts. The industry and the academia are in urgent need of behavioral and operational hospitality marketing and management research to guide the hospitality operations in the time of COVID-19 pandemic.

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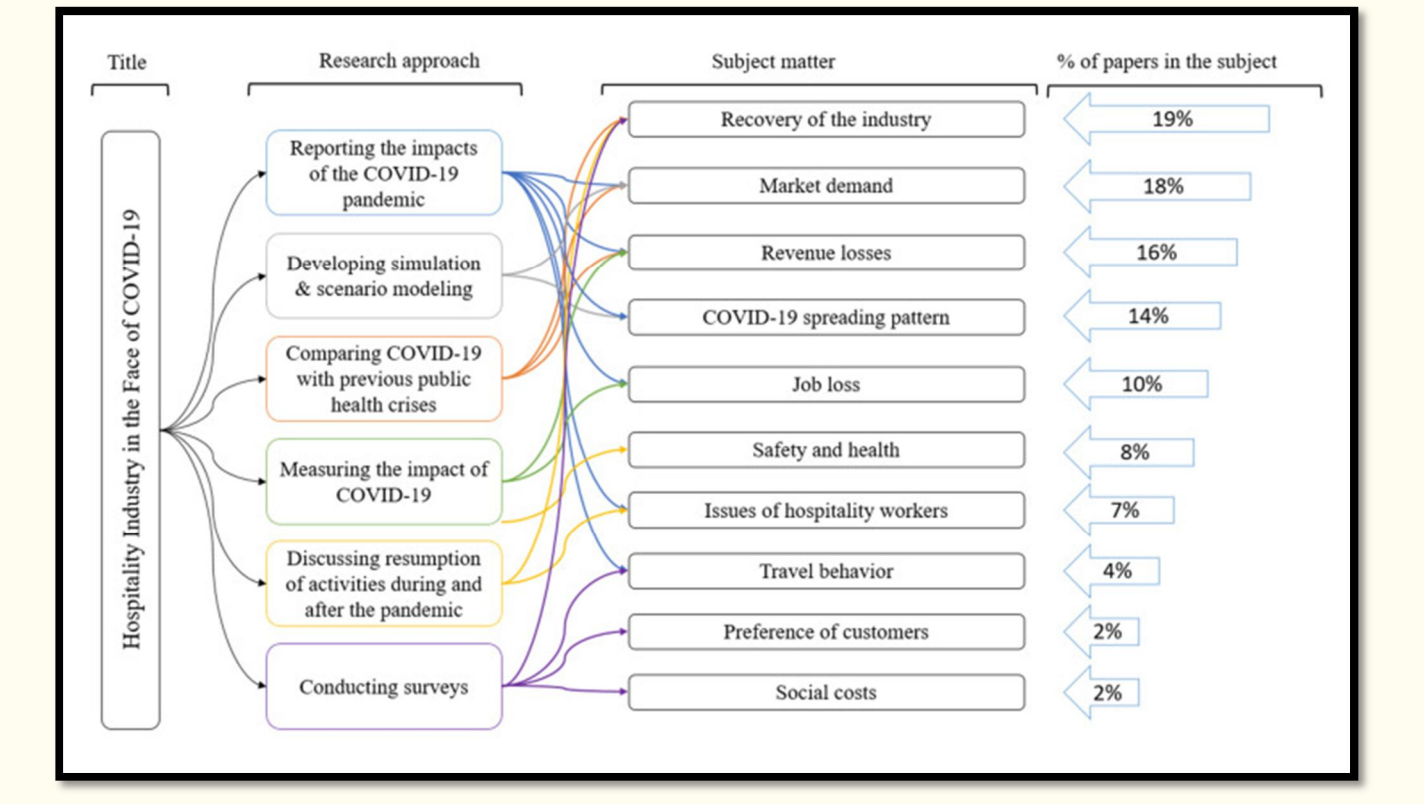

Fig. 3. Deep analysis of changes in hotels industry

Furthermore, there is a group of customers who will only feel comfortable to patronize a sit-down restaurant (around 14%) and travel to a destination and stay at a hotel (around 17%) when the COVID-19 vaccine becomes available. These findings clearly suggest that we need further research on factors that can drive customers back to the hospitality businesses.

III. OUTLINE OF THE THESIS

In the introduction part, the author provides an overview of the topic and will indicate necessary background information. Further, the aims and research objectives will be stated there. The second part is the literature review of this thesis and is divided into two main parts. The first part consists out of the definition of hotel choice and satisfaction attributes and the importance for the hotel industry. The second part of the literature review is a definition of a pandemic in general and going deeper into the still spreading Covid-19 pandemic. [12] Furthermore, the extent and impact of the named pandemic will be presented.

The methodology, which is the third part of this thesis contains a thematical analysis of two chain hotels located in Dubai. Between July and August 2020 reviews from booking.com and tripadvisor.com were collected. After collecting the reviews, codes were generated. These codes were then put together into themes. Afterwards, findings will be presented in the fourth section of this thesis. In the end, the author will summarize the information gained in the previous parts.

IV. BACKGROUND INFORMATION

Hotel choice and satisfaction attributes influence guests to choose one hotel over another. The importance of those attributes is not constant and may change due to different circumstances depending on their influence (Kraus, 2000). In the current case, the Covid-19 pandemic changed people´s perception [13] about safety and therefore a deeper investigation is needed.

In order to demonstrate how all-encompassing Covid-19 is, UNTWO (2021) stated that in 2009, during the great recession, the international arrivals dropped only by four percent which is a fraction of the current pandemic.

Due to the constantly changing and adding restrictions people got insecure in all situations in daily life. Such travel restrictions had an enormous impact on the tourism industry. The United Nations World Tourism Organization (UNWTO) stated that 2020 was the worst year in tourism history. In comparison to 2019, one billion fewer arrivals worldwide were counted (UNTWO, 2021). This means in other figures, the international arrivals dropped by 74 percent compared to 2019.

Among disasters, epidemic outbreaks have a special importance, since the effects are combined with the sometimes forced closure of tourist activities and restrictions on the mobility of citizens. In this sense, the pandemic caused by COVID-19 (disease caused by the SARS-CoV-2 virus) presents four fundamental [14] differences compared with other catastrophic events that have occurred in recent years that make it more severe: intensity, geographical scope, duration, and degree of uncertainty.

At the beginning of 2020, the global economy dropped dramatically as a result of the Covid-19 pandemic. Between the first and second quarters in the previous year, the World Health Organization (WHO) stated important information about the already spreading pandemic. At the very beginning of 2020 on the third January, WHO (2020) stated that Chinese officials provided information about a viral pneumonia that originated in Wuhan, China. [16]

The recent COVID-19 crisis may be one of the most influential and unprecedented events for firms, investors, policy makers and many other market participants. Along with the worldwide outbreak of the disease, it has also spilled over economically to major capital markets and sectors, thereby also adversely affecting the performance and stability of the hospitality industry.

The last years have shown that the hotel industry market is getting more competitive and increasingly dense. One example of this competitiveness is the NH hotel group. NH hotel group took over former Boscolo sites in Europe including hotel properties like Palazzo Naiadi in Rome or the Plaza Hotel in Nice which will then be rebranded (Doggrell, 2020). Another example of the increasing compression of the European hotel market would be Switzerland. The centrally located country in Europe had a growth of 14.7 percent regarding chain hotels. In 2016 they reported 218 chain hotels and two years later Switzerland had gained almost 100 chain hotels.

The reviewed articles focused on different aspects of the hospitality industry, including hospitality workers' issues, loss of jobs, revenue impact, the COVID-19 spreading patterns in the industry, market demand, prospects for recovery of the hospitality industry, safety and health, travel behavior, and preference of customers. The results revealed a variety of research approaches that have been used to investigate the hospitality industry at the time of the pandemic.

A. Global Critical Responses

Critical global responses to control the spreading of the COVID-19 pandemic have included travel restrictions, shelter-in-place and social distancing orders. Most countries around the world have imposed partial or complete border closures, with travel bans affecting the majority of the world's population [6].

Other factors that facilitate infection include (1) speed and efficiency of COVID-19 transmission; (2) airborne transmission [4]; (3) close contact between infected and non-infected individuals; (4) vulnerability of immunocompromised individuals with specific underlying health conditions (e.g., hypertension, diabetes, cardiovascular disease, respiratory problems); (5) susceptibility of persons over 65; and (7) contact with persons who have traveled to locations with a high number of cases [5].

A highly transmissible respiratory disease, COVID-19 spreads through contact with other infected individuals, with symptoms such as fever, cough, and breathing problems [2]. Transmission can also occur from asymptomatic individuals, with up to 40% of infected persons remaining asymptomatic [3].

With millions suddenly unemployed, uncertainty over economic recovery, and global fears of continuing COVID-19 spread and its future waves, the hospitality industry was among the first industries affected, and it will be among the last industries to recover [7].

B. Global Tourism Aspects

COVID-19 related studies submitted to the Journal of Hospitality Marketing & Management must offer something new and original, make an important contribution to the field, develop/propose a better/more efficient way of solving a problem, have good science and a sound methodology, offer sound conceptual and theoretical framework, and provide sound theoretical and practical implications. 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 & 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, 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 last year (Wallis, 2020). It is predicted that RevPAR in the U.S., Europe, and Asia will continue to decline as leisure and business travel is delayed or cancelled due to fear of COVID-19 (Courtney, 2020).

V. AIM OF THE STUDY

The aim of this study is to examine a possible shift in importance of hotel choice and satisfaction attributes during the global Covid-19 pandemic based on existing academic literature and a conducted qualitative thematical analysis:
In order to support the aim of this study, following research objectives were defined:

1) Defining the difference between choice and satisfaction attributes
2) Showing the effect of Covid-19 on the hotel industry regarding economicissues and implemented measures
3) Identifying present guests´ perception of choice and satisfaction attributes

A. LRS

First, the number of people affected by COVID-19 is relatively large. Over the last century, only HIV and the 1918 Spanish flu epidemic have exceeded it in deaths. In addition, because of the form of contagion, numerous measures have been initiated, including mandatory quarantines, which have paralyzed an important part of economic and, in particular, tourist activity.

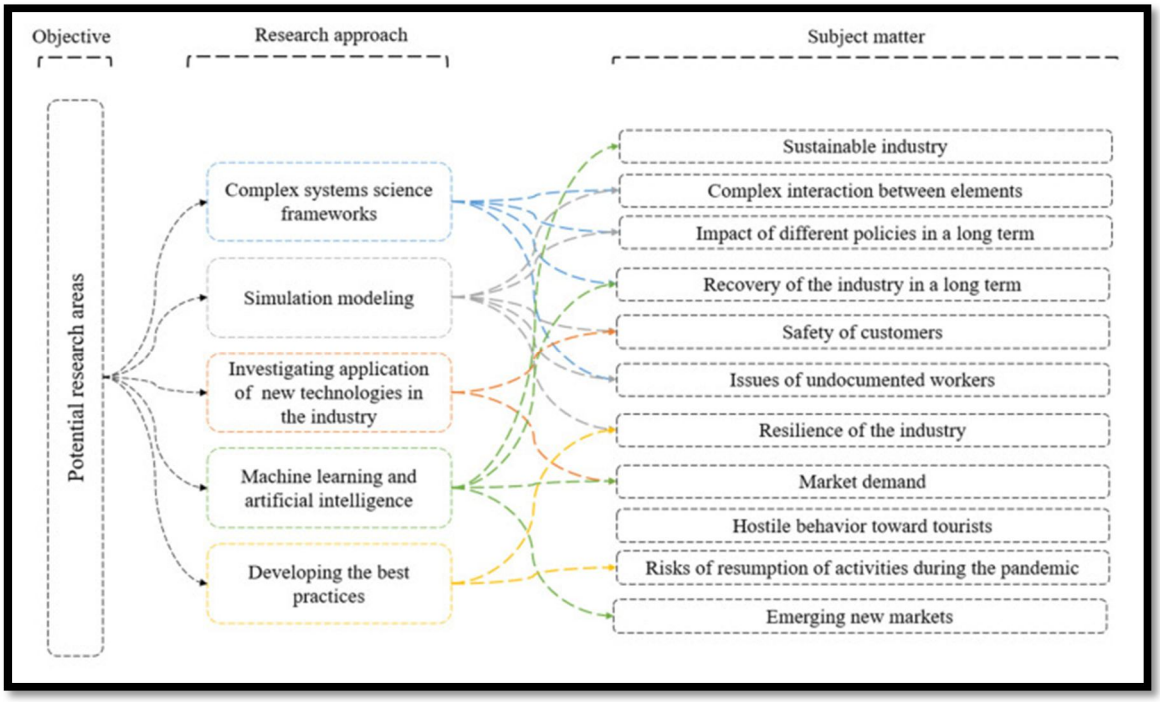

Fig. 4. Potential research areas

Regarding the COVID-19 pandemic, many researchers used a systematic literature review to summarize and evaluate the results of all relevant studies. For example, on the psychological and mental impact of COVID-19 among the general population, healthcare workers, and patients with higher COVID-19 risk. The study selected sixty-two studies with 162,639 participants from seventeen countries.
Although no study used a systematic literature review to investigate the hospitality industry in the face of the COVID-19 pandemic, conducting the systematic review is common in the context of hospitality.
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. This dramatic drop led also hotel managers to rethink their strategies. There are many ways to highlight a hotel. One way to stand out in the highly competitive hotel industry is through its attributes.
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. 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.

B. Preliminary Findings

Preliminary findings also indicate that a large proportion of restaurant customers (64.71%) and the majority of hotel customers (70.42%) believe that the use of various technologies in service delivery will be necessary in the COVID-19 environment in order to minimize human-to-human contact (examples: service robots, contactless payment such as Apply pay or contactless bank cards, digital menus that can be viewed on personal mobile devices via QR codes, contactless digital payments, keyless entry, touchless elevators, etc.)

The research findings also indicate that around a quarter of the customers will only feel comfortable to patronize a sit-down restaurant when their communities' ability to test, trace, and isolate COVID-19 cases is significantly improved. Around 18% of the customers will only feel comfortable to travel to a destination and stay at a hotel when that destination has very few COVID-19 cases and has the ability to test, trace, and isolate COVID-19 cases. Preliminary findings of a longitudinal study conducted by the editorial team of the Journal of Hospitality Marketing & Management suggest that reopening the sit-down restaurants and easing travel restrictions will not bring customers back immediately. A large portion of individuals (over 50%) are not willing to dine in at a restaurant immediately. The same is true for staying at hotels. Most customers (over 50%) are not willing to travel to a destination and stay at a hotel any time soon.

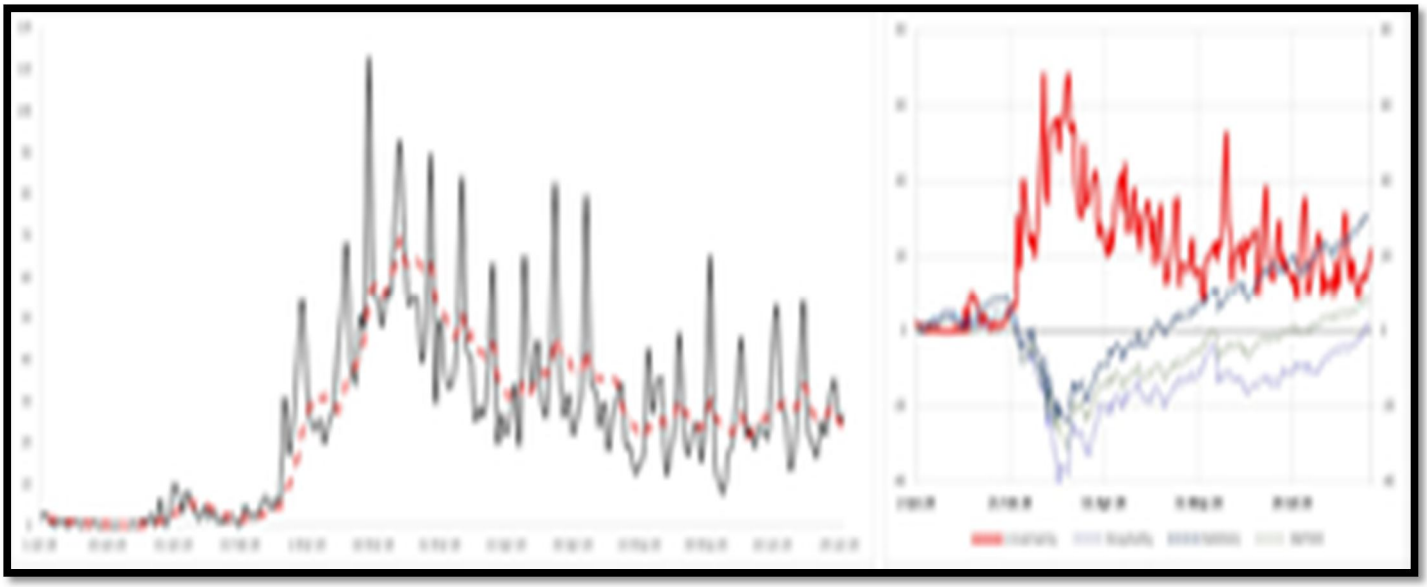

Fig. 5. Graphical analysis by artificial modeling

Preliminary findings also suggest that around one-third of restaurant customers and around 40% of the hotel customers are willing to pay more for increased safety precautions. While customers expect hospitality businesses to implement more rigorous safety/cleaning procedures, a portion of them are willing to pay for those added safety measures.

While preliminary findings indicate that visible sanitizing efforts (such as hand sanitizers at the entry, staff wearing masks and gloves), implementing social distancing, limiting the number of customers served, more rigorous and frequent cleaning of high-touch surfaces in common areas, and employee training of health and safety protocols are the most important safety precautions customers expect from a restaurant and a hotel more behavioral and causal research is needed to determine the (differential) effects of these operational strategies on customers' attitudes and behaviors.

C. Consequences of the Pandemic

The relevant industry has alreadytossed from COVID-19 since hotel companies must deal with a dual crisis; declining demand and increased prices for their services jeopardizing the profitability level in the industry. Although the long-term consequences of this pandemic crisis are difficult to estimate, some studies are attempting to trace the short-term consequences of the pandemic.

Therefore, while using previous conceptual and theoretical frameworks may benefit future research, it is critical to generate new knowledge that can provide insight to the industry about how to transform their operations according to newly emerging customers' needs and wants due to COVID-19 pandemic.

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				Econometric models			
				Ordered Probit	Ordered Probit	Interval Estimation	Fractional Logit
Dependent variable				H_0: rho = 0 $\chi 2$ (1)	Log Likelihood	Log Likelihood	Log Likelihood
Level of occupancy		summer 2020	(1)	4.909**	-414.731	-1020.855	
		autumn 2020	(2)	0.002	-497.824	-879.954	
		winter 2020	(3)	1.006	-473.145	-707.848	
		spring 2021	(4)	0.078	-571.072	-704.643	
		summer 2021	(5)	No convergence	-542.655	-628.695	
Recovery Path		Unweighted	(6)				-248.544
		Weighted	(7)				-247.334
Time needed to recover			(8)			-843.210	-253.824
Time needed to reach	50% occupancy	With COVID-19	(9)		-340.021	-669.591	
		Without COVID-19	(10)		-729.209	-1106.276	
	100% occupancy	With COVID-19	(11)		-471.299	-627.870	
		Without COVID-19	(12)		-744.078	-916.017	
Uncertainty		50% occupancy	(13)		-603.303	-1340.203	
		100% occupancy	(14)		-699.539	-1472.597	

*** p<0.01, ** p<0.05, * p<0.1

Table. 1. Artificial intelligence modeling parameters

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 (CCTV) systems and intensifying safety training for hotel employees following the 9/11 attacks. Of the world except the Republic of China. In April 2020, more than one million reported cases were recorded, updated information on how to use a mask even for healthy people in communities, and the first advice considering large-scale movement restrictions, also known as lockdowns were published (WHO, 2020).

D. Aspects of Hospitality Industry

While the hospitality industry is slowly recovering, the COVID-19 crisis continues to exert profound impacts on how hospitality businesses operate. Hospitality businesses are expected to make substantial changes to their operations in the COVID-19 business environment in order to ensure employees' and customers' health and safety, and enhance customers' willingness to patronize their business.

In addition to all the factors mentioned, the drastic reduction in demand deteriorates the situation further. In this sense, the COVID-19 pandemic has generated an intense perception of risk amongst tourists that has substantially reduced both the frequency of traveling and the distance travelled.

Paradigms that contribute to the development of knowledge and theory of hospitality marketing and management in the COVID-19 business environment. It is important that the study makes significant theoretical and/or practical contribution to the hospitality theory and practice.

E. Negative Impact of the COVID-19 Crisis

The negative impact of the COVID-19 crisis is mainly affecting service-oriented sectors such as the hospitality industry. The latter functions as a powerful vehicle for economic growth and job creation all over the world. It is directly and indirectly responsible for regional development, numerous types of jobs, industries and sub-industries, and underpin many economic activities. There was a great deal of ambiguity about the economic and non-economic consequences of government interventions. In addition, the public was uncertain about whether the government planned future interventions.

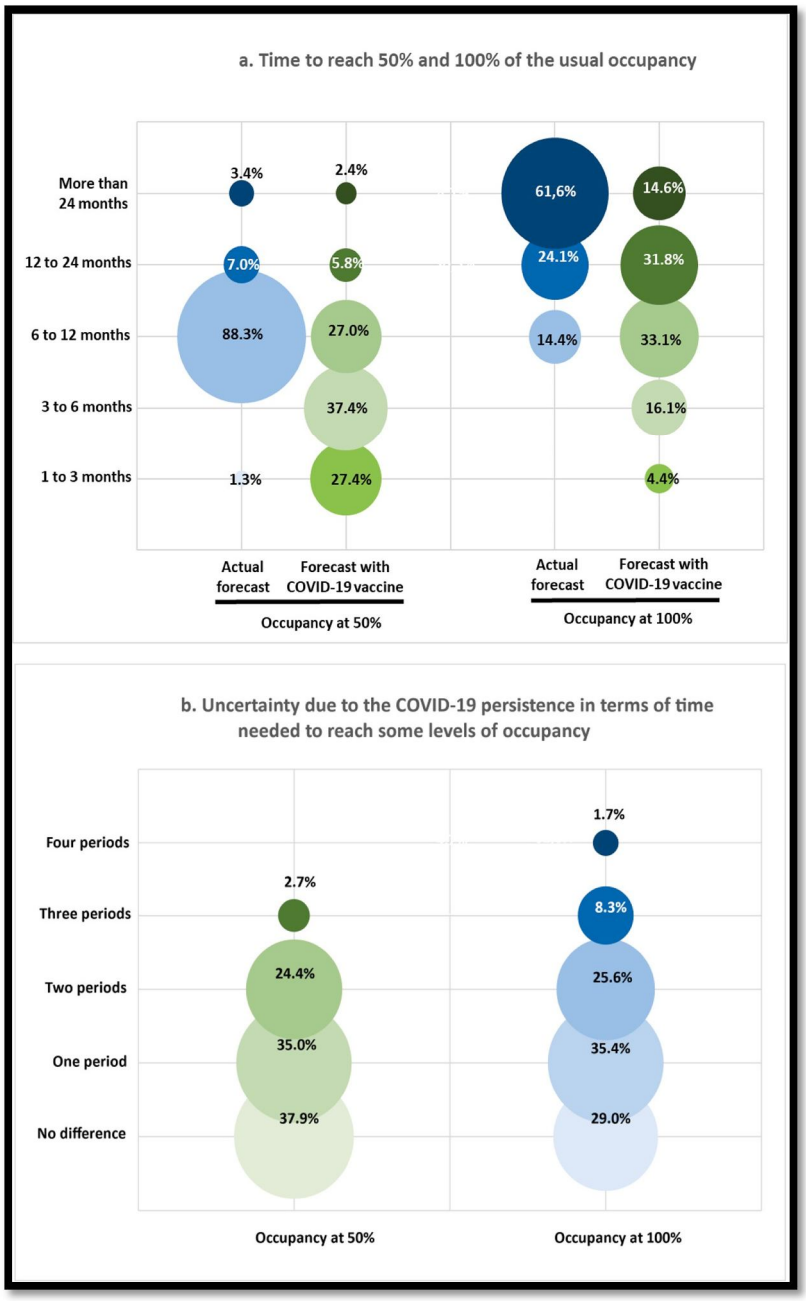

Fig. 6. Deep neural networks uncertainty analysis

While the COVID-19 pandemic has dealt the hospitality industry and the academia with uncharted challenges, it also presents great research opportunities for hospitality scholars. The magnitude of this crisis and its devastating effects on operations, employees, and customers are unrivaled compared to previous crises.

F. Crisis Management and Recovery in Health Crises

In fact, there is abundant literature that analyses the possible strategies that hotel managers should adopt to manage the crisis. Table 1 summarizes the main publications within this stream of research. Although some specific strategies for certain events may be left out, we can highlight some general features. First, the actions and strategies carried out by hotel managers in the face of a variety of events have been widely analysed, from those generated by the action of nature such as epidemics and natural disasters to those caused by terrorism, political instability, wars or economic crises. There is also plenty of heterogeneity in terms of the duration of the events. A majority of the studies focus on the measures to be taken during or after the event, especially in natural disasters.

Aimed at increasing sanitary measures and promoting consumer confidence, sanitary protocols have been created for the hotel sector. The Institute for Spanish Tourist Quality has established practices of guarantees and sanitary measures that hotels must fulfil. In fact, most hotel chains have undertaken specific initiatives and programmers that adopt and even increase these sanitary measures for both workers and customers.2

Fig. 7. Occupancy forecast by international hotel managers.

These interventions were aimed at containing the spread of the virus in an attempt to minimize the adverse effects of the COVID-19 outbreak on both the health and economic realms. A brief review of such interventions reveals that governments imposed different actions such as canceling public gatherings, closing workplaces and schools, requiring social distancing, and also providing economic support, creating contact tracing and offering COVID-19 testing policies.

The present study focuses on understanding the current research on the hospitality industry's topic in the face of the COVID-19 pandemic. A systematic review of the contemporary literature is considered to identify and classify research that focuses on the hospitality industry in the time of COVID-19.

Finally, its uncertainty derives from both the lack of knowledge about the disease and its manifestation in successive, frequent and intense waves of short duration, which hinders public strategies for its mitigation and prevents medium and long-term business strategies and the reactivation and stabilization of tourist demand.

Consequences of COVID-19 on the tourism sector emphasizing the hotel industry, scarce attention has been paid to the effectiveness of the underlying restrictive measures on the performance of the hotel industry.

This study aims to focus on the impact of the national lockdown on hotel performance, in one of the most prevalent tourism destination (Italy). For this purpose, a difference-in-differences (DID) methodology is employed to compare the performance of the hotel industry in Italy and Turkey during the post-treatment period.

VI. SURVEY DESIGN AND SAMPLE CHARACTERISTICS

Although the COVID-19 pandemic has similarities with catastrophic events and with previous epidemics, it also shows important differences. Thus, it seems appropriate to design a compendium of practices for managers and integrate them into a specific questionnaire adapted to the moment in which the field work was carried out, i.e., at the end of the first wave in Spain, when there was still some optimism about the recovery of hotel activity over the coming summer season. Furthermore, the vast majority of hotel establishments were closed at that moment. In order to evaluate the effectiveness of these actions and strategies on hotel performance, hotel managers are asked about their occupancy expectations. Although expectations can be greatly influenced by the optimistic or pessimistic nature of each manager, they are the only available behavioral indicator.

The questions do not refer to invoicing because it is easier for hoteliers to predict occupancy than billing. However, since working with expectations can induce many distortions, the questions are asked several times and from different perspectives with the aim of evaluating the consistency of the answers. Among the horizontal measures are loans for companies endorsed by the state and the Temporary Employment Regulations Plans (TERP), which allow companies to eliminate the cost of their workers while the epidemic lasts, as it is assumed by the public sector. Until December 2020, these measures accounted for approximately 30 billion euros just in the tourism sector, although the renewal of these plans to the end of the pandemic could possibly increase this amount significantly.

A. COVID-19's Impact on the Hospitality Industry

The COVID-19 pandemic had an unprecedented negative impact on the hospitality industry. According to a report published by the American Hotel and Lodging Association the expected US hotels losses are nearly $83.7 ($51.2) billion in room revenue in 2020 (2021), compared with 2019, while job losses in 2020 (2021) are projected to be nearly 630,000 (546,000). In addition, about half of hotel markets, representing 72% of hotel rooms in the US, are still in a recession or depression.

Other studies have examined the impact of previous pandemics, such as the severe acute respiratory syndrome (SARS), on the performance of the hospitality industry. Chien and Law [38] showed that the outbreak of SARS in March 2003 had a strong negative impact on the hotel business in Hong Kong. The occupancy rates of many hotels in Hong Kong fell to 10% or less in March and April 2003, which normally is the peak season.

B. Event Study

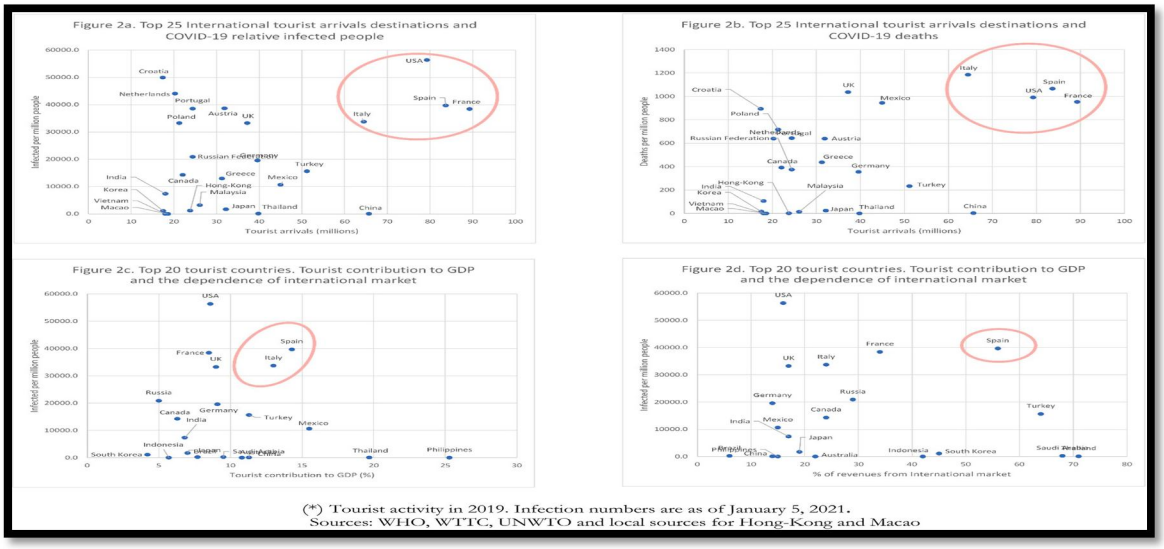

Fig. 8. Graphical analysis by IIT Sutra modeling

Event study methodology explores the response to a specific event by assessing whether it creates abnormal stock returns that can be attributed to new information released. Therefore, in using this method, our first step was determining the event of interest and defining the length of the event's window. To do so, we collected the dates of the government responses to COVID-19 from Hale et al.'s database.

C. Abnormal Returns (AR)

To estimate abnormal returns, we followed several studies that use the event study methodology in the hospitality and other related industries (e.g., [3, 11, 15, 12]). We extracted the residual returns from the well-known Capital Asset Pricing Model. The term in parentheses on the right-hand side of Eq (1) is the expected normal return. The error term is the industry-specific component or the unexpected return, which can be attributed to the new information released such as the intervention. We explored each point in time separately from the market performance.

D. Causality Tests

The second step of our methodology attempts to link uncertainty as a potential driver of the variations in the returns of the hospitality stocks. Therefore, we also utilized the Granger causality test to examine the ability of the uncertainty due to infectious diseases to explain the variations in the returns of the hospitality sector in the COVID-19 period. Technically speaking, this procedure leads to a statistical hypothesis test for determining whether a given time series is useful for forecasting another one.

E. OLS and Regression Analysis

Lastly, after testing the potential relationship between hospitality stock returns and uncertainty, we explore the uncertainty levels around the interventions themselves. To do so, we employ OLS estimations, which link government interventions with uncertainty. Such examination will allow us to reveal whether government interventions induce uncertainty, fear and anxiety, which will be then translated to hospitality stock returns performance. There are two possible explanations for this clearly significant tendency for negative returns following the government's interventions, rooted in two different, but somewhat related, reasons. The first is the ambiguity about the government's future fiscal steps that increased the uncertainty in the stock market [23]. The public finance literature has established that frequent changes in government policy may have direct implications for the stability of macroeconomic variables such as GDP, consumption and debt.

VII. POLICY IMPLICATIONS AND RECOMMENDATIONS

Our findings have important implications and suggestions for the hospitality industry managers, investors exposed to this industry, and policy makers at both the firm and state levels. We demonstrated that the impact of COVID-19, as well as government interventions, is not limited to the hospitality industry alone, but also affects other industries related to it. However, as a sector that relies on people's disposable income, the hospitality industry is particularly sensitive to economic upheaval. When the economic situation is uncertain, consumers typically tend to put off their consumption of hospitality in favor of more basic products. Furthermore, the sudden, widespread outbreak of COVID-19 caught everyone by surprise.

Governments groped in the dark in an effort to find ways of dealing with the situation. Their frequent changes in policy stoked the uncertainty surrounding the situation. One method that governments can use to reduce uncertainty and increase public confidence is transparency. Since time is crucial in managing a crisis, government policies should be announced publicly as soon as possible.

A. Methodology

These primary variables are described in Table 4. Among the actions taken by firms, it is remarkable that almost 78% have carried out sanitary actions and 72% have signed in TERPs. A majority of firms (50%) have applied for some type of loan and it is surprising that only 44% claim to have a contingency plan, with an additional 24% which declare to have a partial one.

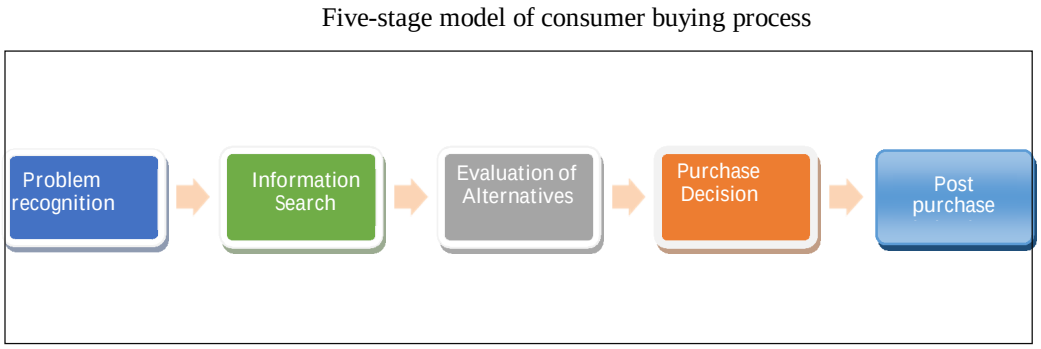

Fig. 9. Five-stage model of consumer buying process modeling

B. Different Satisfaction Attributes

1) *Service Quality:* It stated that service products are produced and consumed simultaneously and have a higher consumer interaction. He separated service quality into three dimensions which are technical, functional and image quality. Other literature also defined service quality, not as a single attribute. In other words, this is what the consumer gets. This dimension is more objective. However, the functional quality is more subjective. Here, the importance is how a consumer gets a certain service. To summarize service quality, the technical image quality would represent the tangible goods in a hotel and functional service quality addresses in what way the tangible goods are conveyed or served. Image quality is built on technical and functional service quality.
2) *Atmosphere:* Atmosphere is a key component to satisfy guests in the hotel industry. There are different definitions of atmosphere. One of the definitions is that atmospheres are "packaged environments" which generate a tendency. This means that the atmosphere positively influences the purchase or consumption of a specific service or good. Further, they pointed out that simple amenities presented in a warm and welcoming appearance tend to increase the satisfaction level of a guest. The last factor, refinement, stands for classical, traditional, or upper class for example. With that knowledge, it can be assumed that atmosphere is one key attribute in the hotel industry but does not guarantee guest satisfaction solely.

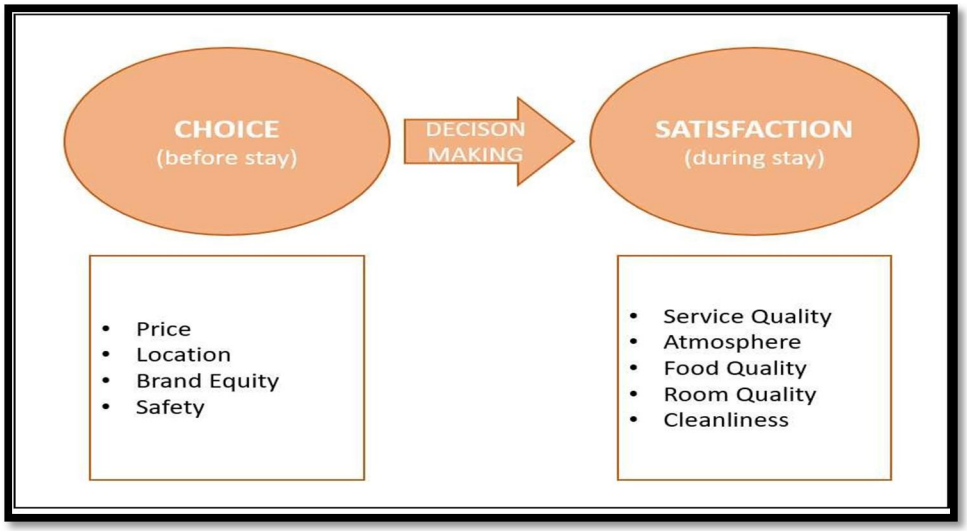

Fig 10. Different choice and satisfaction attributes

C. Theoretical Implications

This proposal is based on adapting the list of business practices and public policies to each of the events, considering their specificities and those of the context in which they occur. In addition, to identify the most appropriate strategies, we propose that these actions and strategies should be related to prospective indicators at the firm level, such as the managers' expectations of hotel occupancy. Although these indicators are subject to uncertainty, we propose the measurement of them from different perspectives, based on the opinions of professionals that are familiar with the behavior of the sector.

D. Practical Implications

The need for innovation and differentiation strategies suggests that managers understand that the attractiveness of the destination is not enough for a rapid recovery of their activity. Offering new, customized and differentiated services can enhance the attraction of both loyal customers and new ones.

E. 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.

F. Health and Healthcare

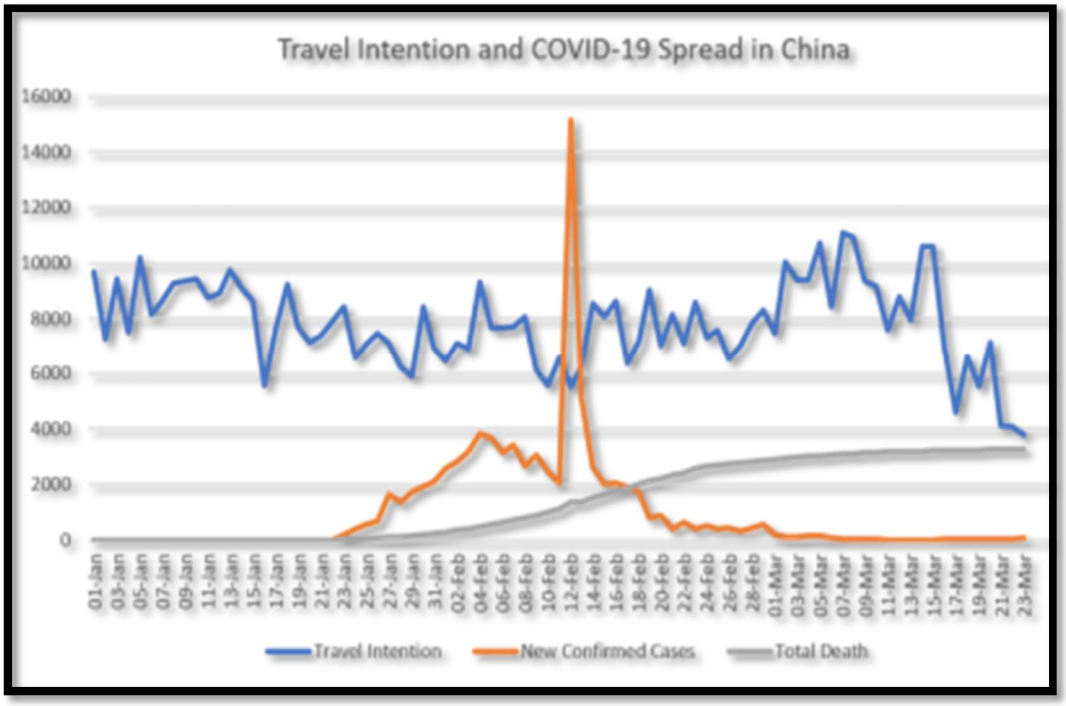

Fig. 11. Impact of Covid-19 Mobility Restriction in China on People's Travel Intention

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.

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.

1) *Developing Simulation & Scenario Modeling:* Eight included papers in this review applied simulation & scenario modeling to estimate aspects of tourism demand and the COVID-19 spreading pattern. The studies used different models and analyses, including a dynamic stochastic general equilibrium (DSGE) model, supply and demand curve, agent-based model, epidemiological model, and susceptible exposed infected recovered (SEIR) model.
2) *Comparing COVID-19 with Previous Public Health Crises:* Two papers compared the COVID-19 pandemic with previous public health crises. In the first study, lessons learned from previous crises and pandemics are discussed, including malaria, yellow fever, Ebola, Zika virus, Middle East respiratory syndrome (MERS-CoV), avian influenza (H5N1), Creutzfeldt-Jakob disease (Mad Cow disease), swine flu (H1N1), and severe acute respiratory syndrome (SARS)

G. 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, 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 anticipatedthat robot receptionists, facial scan check-ins, voice guest control, robot delivery, robotconcierge assistants, and other contactless services will begin to replace human-to-human contact services in the near future.

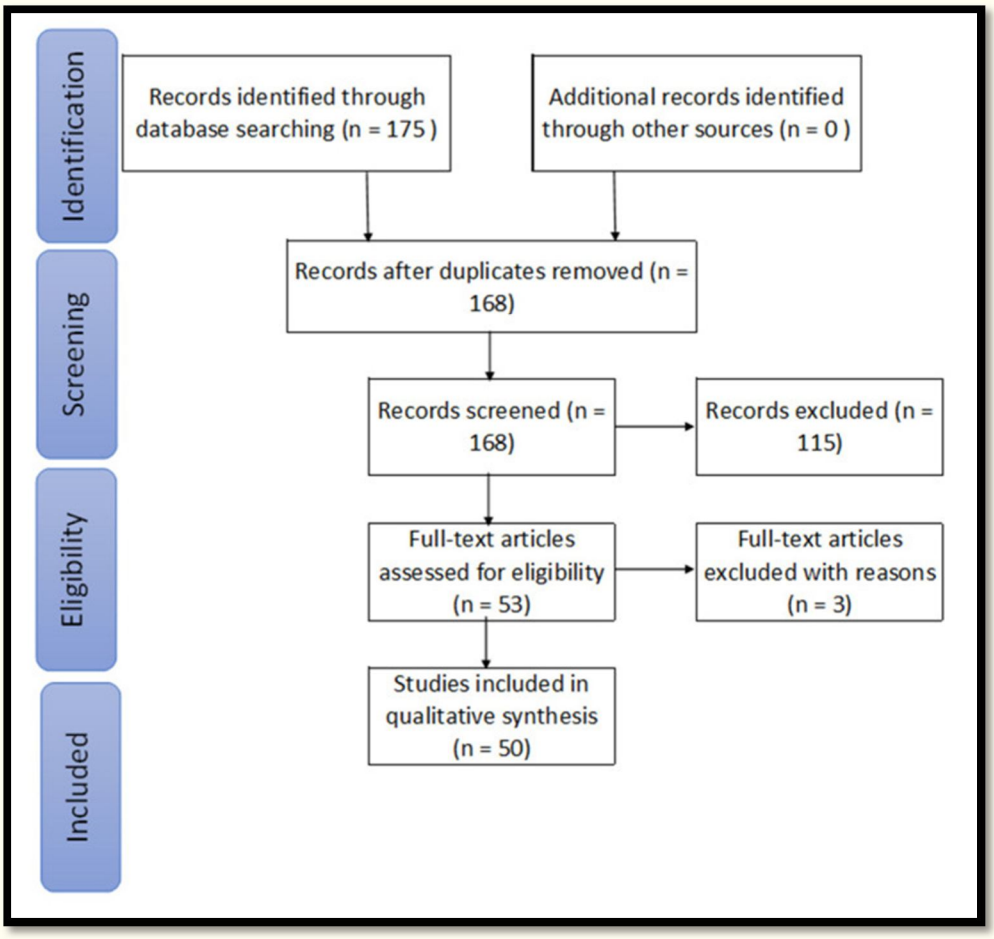

Fig 12. Chart of the selection strategy following PRISMA guidelines

The shifting hotel service landscape offers an opportunity for hoteliers to better serve anddelight 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) andan emerging research field (Tuominen and Ascencao, 2016). Studies have discussed AI and robotics usage in hotels from various perspectives. 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 intersectionof health crises and hotel management, in light of the COVID-19 pandemic.

VIII. FEW QUESTIONNAIRES

In order to verify the consistency between the different predictions declared by the hotel managers, we additionally ask for the shares that each hotel has in the different markets of origin of its guests (regional, national, European and non-European). In a second question, we also ask about the extent to which tourism from these regions is expected to recover in the next five seasons and after summer 2021. Then, we compute an individual hotel indicator that denotes the moment in which the hoteliers plan to recover the pre-COVID-19 situation**.**

1) *Food Quality:* It can also be used as a component for competitiveness. Higher food quality will increase the rate of returning customers and hence, it can maximize the restaurants´ business (Namkung & Jang, 2007). According to Alonso et al. (2005) two dimensions of food quality were crucial. The first dimension is the tangible dimension of perceived food quality. This consists out of touch, color, taste, smell, size, vitamin content, knowledge and experience of the product, freshness, texture and shape. The second dimension was stated as the image dimension of perceived food quality which consists out of packaging and looseness, advertising and brand, origin, promotion and place and thetype of store.

2) *Room Quality:* The importance of room quality in regard to the lodging industry cannot be denied. The most important satisfaction attributes when it comes to room quality were sheets changed upon request only, occupancy sensors, key cards which are responsible for the power control in the room and energy-saving bulbs. In general, people connect with the term room quality the cleanliness of the guest room.
3) *Cleanliness:* Cleanliness in the hotel industry is often described as essential attributes for guests when it comes to selecting an accommodation. This specific hotel satisfaction attribute can be divided into different smaller areas. Through surveys, hecame to the result that the cleanliness in the bathroom and especially the toilet are the most important areas followed by kitchen, bedroom, staff, reception area and exterior. For this thesis cleanliness as a hotel satisfaction attribute will not be separated.

A. *Different Choice Attributes*

1) *Price:* Priceis the only attribute that generates revenue for a company or organization. If the priceis too high or too low, the company or organization might receive a loss in revenue. The price should cover fixed and variable costs, position strategies of the company or organization and the willingness to pay, of the target group. The willingness to pay is the highest amount a customer or guest is willing to pay for a good or benefit. When it comes to the lodging industry a price can be measured as the amount charged per night.
2) *Location:* This mirrors the literature from Bull where it is stated that the location of a property is the only attribute of a hotel that cannot be altered and adapted to market changes. Further, it is stated that the location of a property is a vital attribute when it comes to hotel choice.
3) *Brand Equity:* The journey of selling a product or service is long. If the awareness of a certain productor service is high, a regular purchase can be achieved. Brand equity is the umbrella term of different aspects which all contribute to brand equity. The higher the brand equity of a company is, the higher the chances are of choosing it again. Further, this can also raise the brand loyalty of a guest. In the context of hospitality, a guest who is aware of a certain brand and has positive. This means that a customer has the chance to decide between different brands but picking the one with a more positive relationship.
4) *Safety:* The first dimension is visible safety measures which would represent security cameras for example. The second dimension is documentation and staff training. This refers to how the staff gets instructed to document suspicious or unusual occurrences. The last dimension is general security features which refer to electronic door locks for example. Further,hotels that changed their safety and security policies after 9/11, got the highest scores.This can be converted in today's situation. Hotels which reacted quicker than others will probably receive higher scores in the review section than others.

B. *Data Collection Process and Analysis*

The data was collected in the period between June and August 2020, while the pandemic forced a lot of countries over the world to shut down. Dubai however, managed to remain open for business and leisure travelers. The reason why data wasanalyzed from Dubai is that during that time, business and leisure travelers were allowed, while in most other countries all over the world hotels were just allowed to accommodate business guests. The aim was to gain more knowledge about the importance of hotel choice and satisfaction attributes and a possible shift in importance for guests regarding safety and the current Covid-19 pandemic.

C. *Limitations and Further Research*

The COVID-19 situation is constantly changing. It would be very useful to evaluate how the opinion and expectations of managers change in the different stages of the epidemic. This could help us to understand how expectations, restrictive measures and managers' own experience with this unknown phenomenon are all modifying business strategies.
In order to establish contingency plans for future events of a similar nature and evaluate the effectiveness of the different actions and strategies proposed, real data on business results would be preferable to prospective data.

IX. 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.

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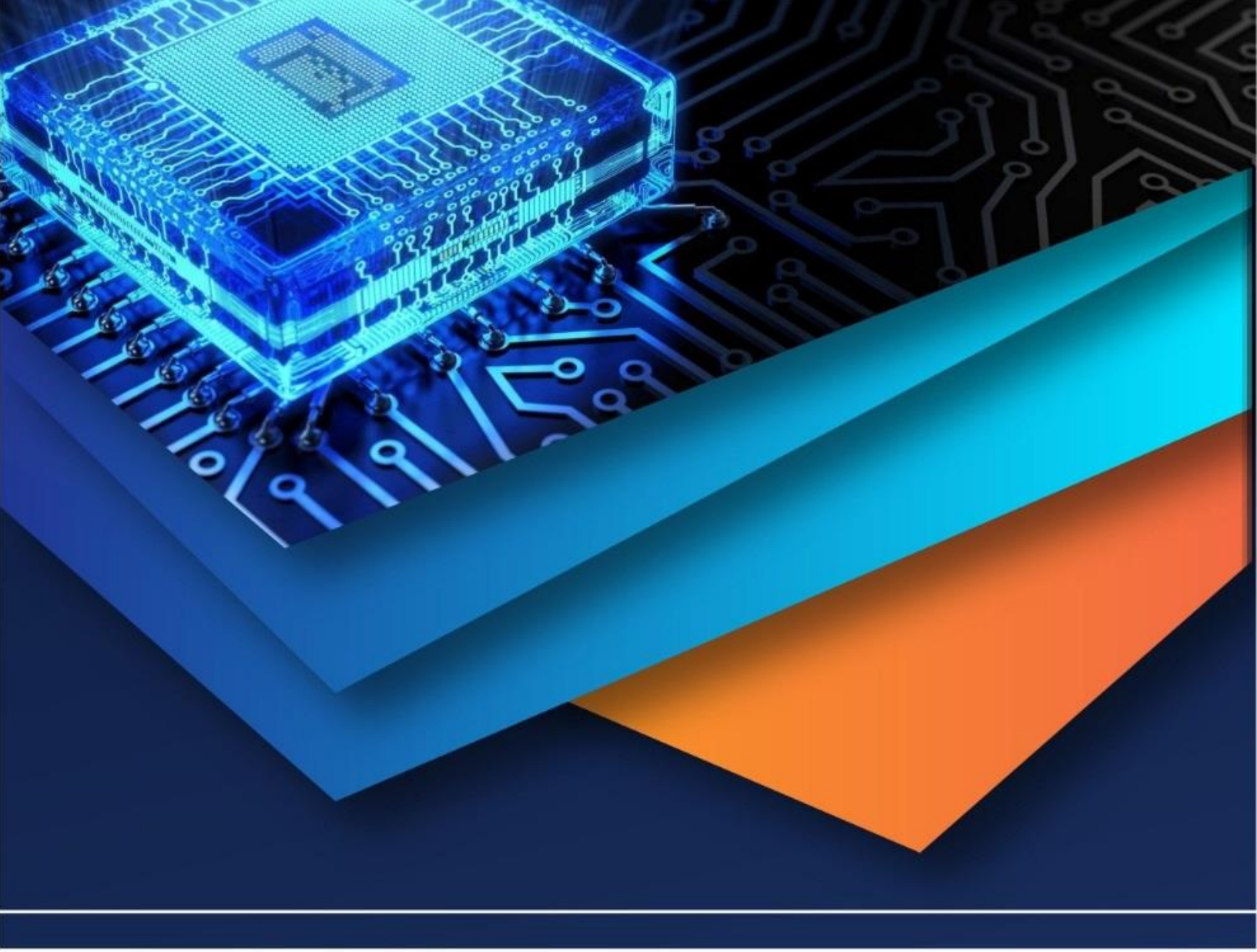

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