

The Impact of COVID-19 on Hotel Guests' Sustainable Practices

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ABSTRACT

The hotel industry is one of the sectors that is heavily affected by the COVID-19 pandemic. Compensating for this lost revenue requires understanding which aspects of guests' priorities have changed, including their feelings about sustainable practices. Drawing from an online survey with 250 adults who were at least 18 years of age, described themselves as familiar with sustainable practices, and stated they had stayed in a hotel both before and during the pandemic, this study finds that the pandemic had a significant impact on their attitudes towards sustainable practices. Although they believe that hotels' adopted protocols are adequate to protect them from COVID-19, they do not intend to adopt sustainable practices in the pandemic era.

KEYWORDS

COVID-19, Guests, Hotels, Intention, Sustainable Practices

1. INTRODUCTION

Krishnan et al.'s (2020) statement that "what's certain is that the next normal will be marked by structural shifts, especially around customer expectations for hygiene and flexibility" has proven true. While research from the past decade indicates that guests prefer to stay in a hotel that demonstrates sustainable practices over one with superior facilities (Bradley, 2020), the ongoing COVID-19 pandemic has changed priorities.

Due to the complications caused by COVID-19, hotel guests have become more fastidious about the details of their accommodation compare to pre-pandemic (Yang, Zhang & Chen, 2020). As Fox (2020) reported, a company has surveyed guests in the United States who have stayed at a hotel in the past two years. In this survey participants answered questions about their perception of the pandemic-related protocols and concerns about hotel accommodations. The results of this survey revealed that COVID-19 has increased guests' desire for a contactless experience as well as the added convenience that did not exist in the past. Experiences such as mobile check-in, mobile concierge services, and keyless entry are among the highly demanded services that accelerated due to the pandemic (Fox,

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2020). These findings suggest a need for substantial research to understand guests' intentions when it comes to hotel services, particularly to the sustainability practices, during the COVID-19 pandemic.

The pandemic has undesirable impacts on the service industry (Benedek, Gemayel, Senhadji, & Tieman, 2021). The United States hotel industry, for instance, declined remarkably in 2020 and the occupancy rate dropped to 44 percent, which was 33 percent less occupied than the year before (Lock, 2021).

To understand guests' intentions with respect to prioritizing hotels' sustainable practices, this study attempts to deliver a critical investigation of the hotel guests' preferred features during the pandemic.

The current study is designed within the framework of the Unified Theory of Acceptance and Use of Technology (UTAUT) model, which Venkatesh, Morris, Davis, and Davis (2003) designed to clarify user intentions in using structured information and the consequence of their behavior. It adopts the perceived credibility (PC) construct from the model Palau-Saumell, Forgas-Coll, Sánchez-García, and Robres (2019) used in their research.

The model is a modified version of eight different models: the theory of reasoned action (Fishbein & Ajzen, 1977), the technology acceptance model (TAM; Davis, 1985), the motivational model (Davis, Bagozzi, & Warshaw, 1992), the theory of planned behavior (TPB; Ajzen, 1991), the combined TAM and TPB model (Taylor & Todd, 1995), the model of PC utilization (Thompson, Higgins, & Howell, 1991), the innovation defusion theory (Moore and Benbasat, 1991), and social cognitive theory (Compeau and Higgins, 1995).

Findings reveal the impact of five key dimensions: performance expectancy (PE), effort expectancy (EE), perceived credibility (PC), social influence (SI), and task-tech fit (TTF; or facilitating conditions) on guests' intention to utilize the hotel's sustainable practices (Figure 1). These dimensions are articulated through the developed hypotheses, which are explained under the hypothesis's development section.

The current study not only contributes to the theoretical discussions but also will be an implication for hoteliers and managers seeking to tailor sustainable practices according to guests' preference-triggers, which have been reformed due to the pandemic. The variables and methods used in the current study can be changed to fit the situation in future studies to expand the understanding of the subject.

2. THEORETICAL FOUNDATION

2.1. The Effect of the Pandemic on the Lodging Industry

Los Angeles is known as a world-class destination market (Major, 2021). According to this article, revenue per available room (RevPAR) in the Los Angeles hotel market reduced more than 52%, in 2020, which was the largest decline in the history of the market, the hotel occupancy rate declined to 49% in 2020 from 80% in 2019, and the average daily rate (ADR) reduced to \$139 from \$181 the year before (Major, 2021).

Gössling, Scott, and Hall (2020) stated that global travel restrictions and stay-at-home orders caused the most drastic interruption of the U.S. economy since World War II. Similarly, Legrand (2020a), described the failure in consumption and the uncertain future of the hotel business investments across the world as the main effects of the pandemic in the hospitality sector. Hu, Yan, Casey, and Wu, (2021) attributed the high degree of personal interaction involved in staying in a hotel as the reason for hotel industry failure during the pandemic.

2.2. The Components of the UTAUT Model

As Algharibi and Arvanitis (2011) stated, one of Venkatesh et. al's principal objectives in designing the UTAUT model was identifying user needs that arise during the processes of execution of a new system. In their study, Algharibi and Arvanitis (2011) utilize UTAUT as a tool for validating user needs on the implementation of a new system.

Venkatesh, et. al. (2003), theorized that four constructs will have a substantial and direct role in determining user intention to use a new system: PE, EE, PC, SI, and TTF.

2.2.1. Performance Expectancy (PE):

Venkatesh, et. al. (2003), define PE as the degree to which an individual believes that using a particular system will enhance the performance of that system. They described PE as the strongest predictor of intention to use among the eight models which were adopted to design the UTAUT model (Venkatesh et al., 2003). Thus, in the current study, the performance expectancy was examined to understand how guests' COVID-19 associated performance expectations, could influence their intention to use the hotels' sustainability practices.

2.2.2. Effort Expectancy (EE):

EE is the degree of ease associated with the use of the provided system (Venkatesh, et. al., 2003). In their study, Venkatesh, et. al., (2003) found that three constructs from the eight principle models reflected the concept of effort expectancy: perceived ease of use, complexity, and ease of use. Other studies indicated that EE has a positive and significant effect on the intention of use of the system (Kabra, Ramesh, Akhtar, & Dash, 2017; see also Razak, Bakar, & Abdullah, 2017). However, in Venkatesh, et. al.'s (2003) study EE was the most noticeable for women, mostly those who are older and with relatively little experience with the system. The current study was examined the effort expectancy to understand if hotel guests found it easy to practice sustainability during the pandemic.

2.2.3. Perceived Credibility (PC):

Wang, Wang, Lin, and Tang (2003), defined PC as the degree to which a user trusts that using a system will not carry any security or privacy threats. Credibility, as Eisend (2006) defined it, refers to what extent the information is considered to be from a credible source. Palau-Saumell, et al. (2019), added PC to the UTAUT model and discovered that it directly and positively affects intention to use. Palau-Saumell, et al. (2019), focused on the use of mobile applications for restaurant searches and/or reservations. In order of impact, perceived credibility was the second driver of intentions in their study (Palau-Saumell, et al., 2019).

2.2.4. Social Influence (SI):

Venkatesh, et al. (2003), defined SI as the degree to which users notice that others whom they consider important believe they should use a new system. They found that SI is a direct determining factor of intention and that it has a stronger impact on women, older workers, and individuals with limited experience of the system (Venkatesh, et al., 2003). The current study examined the importance of social influence construct on hotel guests' intention to utilize sustainability practices in the pandemic era.

2.2.5. Task-Tech Fit (TTF) or Facilitating Conditions:

TTF or facilitating conditions are defined as the degree to which users believe that a practical infrastructure exists to support users' intention to utilize a specific system (Venkatesh, et al., 2003).

Putting the significant impact of the facilitating conditions in the context of the COVID-19, hotel managers should be prepared for two possible outcomes: They will either have an outbreak of the virus in their properties or lose money due to the reduction and cancellation of travel related to the pandemic (Combs, 2020).

2.3. Hotels' Sustainable Practices; Before and After COVID-19

Responding to calls for reduction of greenhouse gas emissions, more efficient use of renewable energy resources, and a reusable supply system, the hospitality industry adopted changes to make some of the conventional features of the industry more sustainable (Jones & Comfort, 2020 a). In green

hotels, single-serving packages and disposable plates/glasses were replaced by reusable packages, and the towels and linen were changed only upon request (Tirellis, 2019). As a consequence, more businesses were creating initiatives to become sustainable by reducing or terminating these groups of products (Altenrath, 2020).

Even though the continuous commitment to sustainability was very important in preserving the relationships between the hospitality industry and community, COVID-19 caused massive challenges to this relationship which might lessen the industry's commitment to sustainable programs (Jones & Comfort, 2020a). For instance, maintaining a strong position against disposable items may increase operating costs for hospitality businesses that are gradually recovering from the financial crisis (Altenrath, 2020). Based on these challenges, Legrand (2020 c), defines COVID-19 as "a stress test for sustainable development in hospitality".

Beyond costs, hygiene protocols associated with COVID-19 may be incompatible with hotels' sustainability programs and initiatives. Whereas violating hygiene protocols is a vast concern, reduced sustainability practices are a remarkable matter as well (Altenrath, 2020). Dealing with contamination by the deadly COVID-19 virus is a new burden for housekeeping managers and staff (Park, Kline, Kim, Almanza, & Ma, 2019) and thus enhanced cleaning requires specific training. This enhanced cleaning is both costly and at least partially incompatible with hotels' sustainability efforts.

According to Altenrath (2020), the retention of pandemic-related hygiene protocols means detergents containing ingredients that are unlikely to be sustainable, and laundry services will cause more emissions because of the higher washing temperature required.

Currently, the main hotel operations challenge is finding the sweet spot between hotels' sustainable practices and COVID-19 related hygiene protocols, in a way that not only addresses guests' pandemic-related hygiene concerns but also fulfills guests' desire for sustainability practices (Altenrath, 2020).

2.4. Guests' Pre- and Post-Pandemic Intention to Utilize Sustainability Practices

Pre-pandemic studies indicated a dramatic raising of awareness of the value of sustainability in the hotel industry. Jones, Hillier, and Comfort (2016) found that hotel guests paid increasing attention to the issue. Likewise, Ramayah, Lee, and Mohamad (2010) found that guests have become more mindful about their environmental responsibilities and this affects their purchasing decisions. A study conducted in 2018 concluded that guests' belief about the value of sustainability practices is a strong motive in their intention to practices sustainability (Memarzadeh & Anand, 2020). The consequence of guests' awareness was that hotel managers were incentivized to adopt the sustainability practices at all different levels of operations, from fundamental practices such as recycling waste to more advanced ones like gaining sustainability certifications (Berezan, Millar, & Raab, 2014). The results of this study found that guests rated recycling highly but efforts to lower laundry impacts by not changing the sheets daily less highly (Berezan et al., 2014).

According to Park et al. (2019), guests ranked hotel hygiene and cleanliness as the most significant feature when choosing a hotel. In another research by Shin and Kang (2020), different investigational studies were conducted to examine how does the expected interaction and cleanliness impact the perceived health risk and hotel booking aim during the pandemic. Two remarkable highlights of this study are, first, that implementing advanced cleaning technologies can be effective to reduce guests' perceived health risks, and second, reducing guest interactions via the adoption of hotel technology would decrease guests' perceived risk (Shin & Kang, 2020). This study concludes that higher levels of expected sanitation will lead to lower levels of perceived health risks even if the expected interaction is high (Shin & Kang, 2020).

2.5. Redefining Hotel Operations in the Pandemic Context

The COVID-19 pandemic has led to profound modifications in the operations of the hotel industry, economy, and global health structures (Rivera, 2020). Since the hotel business is all about interacting and coming together (King, 1995) and there is no guarantee that the world will not be facing another

unforeseen problem, the industry needs to be prepared for such eventualities (Rivera, 2020). Since the recovery investigation on crisis management and preparation is an essential task for businesses (Rivera, 2020), businesses such as hotels should reach a comprehensive understanding of the pandemic-associated safety standards (Hu et al., 2021). Hu et al. (2020) described a four-step process by which organizations achieve such understanding: First, customers are informed and educated regarding the standard in a way that addresses enhanced risk and health awareness. Second, customers are educated regarding the benefits of safety protocols. Third, behavioral acceptance implies that staff must understand that the new standards may not be permanent. As staff adapted their behaviors with new COVID-19 safety protocols, such adaptation leads to the final step of deep integration with existing work practices.

In order to follow new safety standards, hotels have taken strict hygiene and sanitary measurements to protect their guests, which includes conducting complete decontamination of the hotel rooms (Hao, Xiao & Chon, 2020). For example, BTG Homeinns Hotels “upgraded its worry-free service to include 24 special cleaning standards and 59 anti-pandemic cleaning measures” according to the report cited by Hao et al. (2020).

According to Hao et al. (2020), hotels cooperated with online travel agencies to offer accommodation projects that guaranteed sanitation. More than 100,000 hotels joined the “Rework and Stay Safe” project that was initiated by Qunar.com, which is an online travel agency (cited in Hao, et. al., 2020). This project develops member hotels’ contactless services to support robotic room services and self-check-in equipment (Hao, et. al., 2020).

3. HYPOTHESES DEVELOPMENT

Given all the supporting arguments regarding the impact of COVID-19 on hotel guests’ sustainable practices, the current study will explore five hypotheses.

In order to explore the degree to which guests believe the hotels’ sustainable practices are effective toward COVID-19, PE is measured. Therefore, the first hypothesis of this study was developed as:

Hypothesis 1: There is a positive correlation between PE and intention to stay in sustainable hotels after the onset of the COVID-19 pandemic.

To explore guests’ efforts to utilize the hotels’ sustainable practices during the pandemic, EE is examined. Thus, the second hypothesis of the current study was defined as:

Hypothesis 2: There is a positive correlation between EE and intention to stay in sustainable hotels after the onset of the COVID-19 pandemic.

To uncover how much pressure are guests feeling to comply with hotels’ COVID-19 precautions protocols, SI is measured. Accordingly, hypothesis three was designed as:

Hypothesis 3: There is a positive correlation between SI and intention to stay in sustainable hotels after the onset of the COVID-19 pandemic.

To explore PC of hotels’ sustainable practices, guests were asked if sustainable practices can protect them from the pandemic. Consequently, the fourth hypothesis was established as:

Hypothesis 4: There is a positive correlation between PC and intention to stay in sustainable hotels after the onset of the COVID-19 pandemic.

Finally, whether guests believe that the existing structure can support the use of sustainable practices during the pandemic is measured through TFF. Hence, the fifth hypothesis was developed as:

Hypothesis 5: There is a positive correlation between TFF and intention to stay in sustainable hotels after the onset of the COVID-19 pandemic.

4. METHODOLOGY

This study was intended to understand, within the framework of the UTAUT model (Figure 1), hotel guests' intention to use hotels' sustainable practices. The preliminary study survey was developed and revised to fit the hotel industry to be delivered online using a self-administered questionnaire via Qualtrics, an online questionnaire service platform. The sample for this study consisted of 250 participants who met the inclusion criteria, which were established through their positive responses to the first three questions on the survey: they were at least 18 years of age, familiar with hotels' sustainable practices, and have stayed in a hotel both before and during the pandemic. The first three questions of the survey were the screening questions to detect those who were at least 18 years of age, familiar with hotels' sustainable practices, and have stayed in a hotel both before and during the pandemic. Only those participants who answered "YES" to these three questions were designated to complete the rest of the survey. The data were collected between April 14, 2021, and May 5, 2021. As the pre-pandemic study conducted by Memarzadeh and Anand (2020) revealed, guests showed strong intention to use hotels' sustainability practices. Therefore, the current study used screening questions to ensure that participants had both pre-and post-pandemic hotel stay experiences upon which to base their opinions.

5. MEASUREMENTS

The proposed model studied the impact of COVID-19 on guests' support for hotels' sustainable practices. This research was designed to discover the effects of PE, EE, PC, SI, and TFF on guests' intention to use hotels' sustainable practices in the pandemic era. For each of these questions, there was a 7-point Likert scale with 1 indicating strongly agree and 7 indicating strongly disagree.

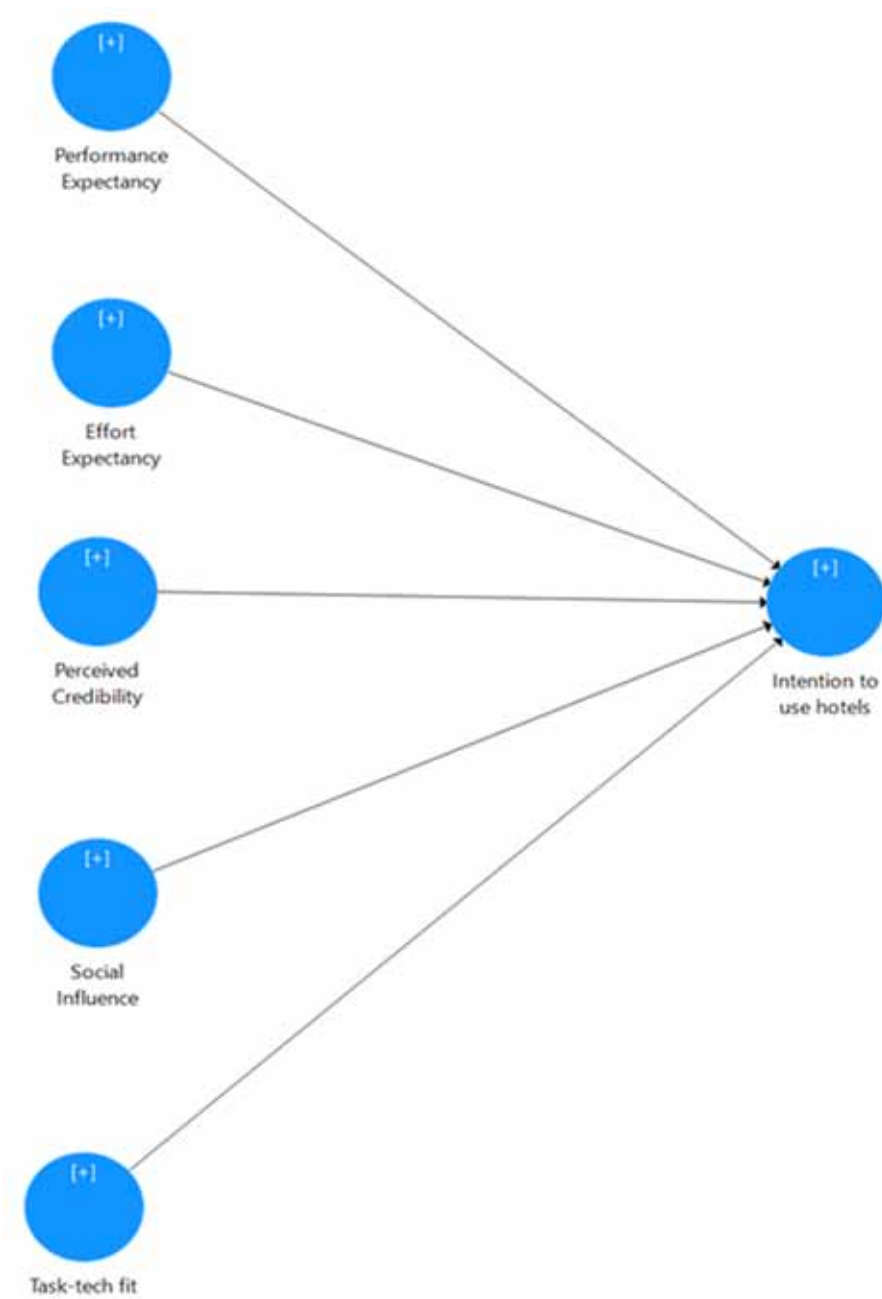
Questions for each construct were adopted from different scholarly studies. For instance, questions for PE were adopted from Liebenberg, Benade, and Ellis (2018) and Wu, Tao, and Yang (2008). The EE questions were extracted from Palau-Saumell, et al (2019), and Liebenberg, Benade, and Ellis (2018). Palau-Saumell, et al. (2019) also supplied the PC questions. For SI, we used questions in Wu, et al. (2008), and Venkatesh, et al. (2003). Questions regarding TFF were adapted from Wu, et al. (2008), Venkatesh, et al. (2003), and Palau-Saumell, et al. (2019).

Intention to use, according to Palau-Saumell, et al., (2019), consists of three components: willingness to use, planning to use, and intention to use. The current study modified these three components into a single component of the likelihood of staying at a hotel that uses sustainable practices.

6. DATA ANALYSES

The data were configured for use with SPSS 25 and SmartPLS 3 (Ringle, Wende, & Becker, 2015) to test (a) the validity and reliability of the conceptual framework (see Figure 1). All the findings are reported in the results section.

Figure 1. UTAUT Model



7. DESCRIPTIVE STATISTICS

Female respondents accounted for 57% (n=196) and male respondents accounted for 40% (n=138). In terms of familiarity with sustainable practices, respondents reported (a) 39% (n=131) being somewhat familiar, (b) 27% (n=92) familiar, (c) 18% (n=60) have never heard this term, and (d) 16% (n=53) are very familiar. Regarding familiarity with conventional (non sustainable) practices, (a) 34% (n=114)

are somewhat familiar, (b) 31% (n=105) are familiar, (c) 21% (n=70) are very familiar, and (d) 14% (n=46) have never heard this term. Most respondents, 89.47% (n = 340) reported staying in a hotel and only 10.53% (n = 40) reported not staying in a hotel. Regarding frequency, those respondents who have stayed at a hotel, do so (a) a few times per year, 34.23% (n=115), (b) a few times a year, 23.81% (n=80), (c) once or twice per year, 14.58% (n=49), (d) several times per month, 11.31% (n=38), (e) once per month, 10.71% (n=36), or (f) less than once or twice per year 5.36% (n=18).

The majority of the respondents stay for leisure 63.77% and 36.23% stay for business. With respect to the brand or type of hotel, (a) 21.87% (n=143) stayed in a Hilton, (b) 20.18% (n=132) in a Marriott, (c) 12.08% (n= 79) in a Hyatt, (d) 9.79% (n= 64) in a Sheraton, (e) 15.29% (n=100) in a Best Western, (f) 11.01% (n=72) in an independent hotel, and (g) 5.96% (n=39) in a boutique or other type of hotel, (h) 3.82% (n=25) others.

8. PARTIAL LEAST SQUARES (PLS)

This study applied Smart PLS 3 software to perform the partial least squares - structural equation modeling (PLS-SEM) analysis. PLS-SEM is a variance-based structural equation modeling technique that has been gaining increasing interest among tourism and hospitality researchers. Reinartz, Haenlein, and Henseler (2009) recommend applying PLS-SEM when the research is predicting latent variables and identifying the relationships between latent variables.

9. ASSESSMENT OF MEASUREMENT MODEL

To analyze the proposed framework, researchers conducted a two-step process beginning with the assessment of the measurement and structural models to examine the research model. PLS-SEM was administered to evaluate the measurement model; the latent variables (LVs) and their related observable items and the structural model, as well as the relationship between LVs (Hair et al., 2016).

The research framework included six reflective constructs (i.e. PE, EE, PC, SI, TTF, and guests' intention to use hotels' sustainable practices). To evaluate the reflective measurement models, the researchers tested outer loadings, composite reliability (CR), and average variance extracted (AVE) for reliability and convergent validity, as well as discriminant validity. Convergent validity was assessed through factor loadings, CR, and AVE (Hair et al., 2016). Table 1 shows the results of the assessment of the measurement model for reflective constructs. All outer loadings exceeded the recommended value of 0.5 (Hair et al., 2016). CR values are greater than the recommended value of 0.7 (Hair et al., 2016) while AVE, which reflected the overall amount of variance in the indicators accounted for by the latent construct, was in the range of 0.56 - 0.60. AVEs exceeded the recommended value of 0.5 (Hair et al., 2016). Therefore, the results showed acceptable reliability and convergent validity for reflective constructs.

To assess the discriminant validity, which evaluates the distinction between constructs, the conservative criteria Fornell-Larcker (1981) and heterotrait-monotrait (HTMT) were used. To meet the Fornell-Larcker criterion, the AVE for each construct should be higher than the squared correlations with the other constructs in the model (Hair et al., 2016). Table 2 shows that the square roots of the AVEs for the constructs along the diagonal are higher than the correlations among the constructs. Table 3 shows that HTMTs for all constructs were between 0.26 and 0.87—well below the recommended value of 1.0, which indicates a lack of discriminant validity (Ab Hamid, Sami, & Sidek, 2017).

10. ASSESSMENT OF THE STRUCTURAL MODEL

PLS-SEM, including a number of advanced analysis techniques, were utilized to assess the direct relationships. The Variance Inflated Factor (VIF) criterion revealed that all values were below 5

Table 1. Results: assessment of reflective measurement

Constructs/Items	Type	Loadings/ Weights	AVE	CR
EE Cronbach's Alpha: 0.80	Reflective		0.55	0.861
Protecting myself from COVID while staying at a hotel that uses sustainable practices will require no extra effort on my part.		0.751		
It will be easy for me to understand and follow sustainable practices while staying at a hotel during COVID.		0.733		
I prefer to stay in a sustainable hotel even if I have to pay more.		0.732		
I prefer to stay in a sustainable hotel even if that means that I will have fewer hotel choices.		0.755		
I think sustainable practices will not expose me to a higher risk of contracting COVID.		0.75		
PE Cronbach's Alpha: 0.85	Reflective		0.60	0.90
Sustainable practices can protect me from COVID.		0.829		
Hotels' sustainable practices decrease my chance of getting COVID.		0.774		
In the pandemic era, I still prefer to stay in a hotel that uses sustainable practices.		0.719		
Hotels' sustainable practices make it safe for me to stay in a hotel during the pandemic.		0.791		
Hotels' sustainable practices enhance my hotel stay experience during the pandemic.		0.79		
Hotels' sustainable practices are something I look for when booking a room, regardless of COVID.		0.721		
Perceived Credibility (PC) Cronbach's Alpha: 0.735	Reflective		0.56	0.834
Information about COVID from the public health sector is trustworthy.		0.761		
Information about COVID from the scientific sector is trustworthy.		0.781		
Sustainable products are as clean as harsher chemicals.		0.716		
Because COVID scientific and public health information is trustworthy, I feel safe using it to make a decision about staying at a sustainable hotel.		0.724		
SI Cronbach's Alpha: 0.856	Reflective		0.58	0.90
I feel a sense of social responsibility to continue behaving sustainably even during the pandemic.		0.749		
People whose opinion matters to me think that hotels should continue using sustainable practices during the pandemic.		0.753		
My friends and family have expressed the opinion that hotel guests should continue to personally follow sustainable practices.		0.777		
My friends and family continue to support hotels' sustainable practices during the pandemic.		0.767		
It makes me feel good to know that my friends and family would approve of my continuing to stay in sustainable hotels during the pandemic.		0.749		
It is important to me that people around me know that I continue to stay at hotels that use sustainable practices during the pandemic.		0.772		
TTF Cronbach's Alpha: 0.837	Reflective		0.55	0.88
Sustainable practices protect me against COVID just as well as conventional practices.		0.725		
Reusable items such as cloth napkins, glass cups, silverware, and ceramic dishes are as safe to use during COVID as single-use items.		0.742		
Plant-based and other natural cleaners are as effective as conventional cleaners to protect me from COVID.		0.787		
Less frequent washing of sheets keeps a room sufficiently sanitary during COVID.		0.721		
Hotels provide enough information for guests to understand what their sustainable practices are.		0.727		
Information about how well sustainable practices protect guests from COVID is easy to find on the hotel website(s).		0.747		
Intention to Use Cronbach's Alpha: 0.811	Single Item			
How likely are you to stay at a hotel that uses sustainable practices the next time you travel?				

Table 2. Discriminant validity: Fornell-Larcker criterion

	EE	Intention to use hotels' sustainable practices	PC	PE	SI	TTF
EE	0.744					
Intention to use hotels' sustainable practices	0.431					
PC	0.463	0.226	0.746			
PE	0.713	0.331	0.418	0.772		
SI	0.705	0.402	0.534	0.672	0.761	
TTF	0.727	0.468	0.467	0.592	0.721	0.742

Table 3. Discriminant validity: HTMT criterion

	EE	Intention to use hotels' sustainable practices	PC	PE	SI	TTV
EE						
Intention to use hotels' sustainable practices	0.47					
PC	0.608	0.261				
PE	0.866	0.349	0.526			
SI	0.857	0.423	0.667	0.781		
TTV	0.878	0.505	0.598	0.695	0.846	

(Hair et al., 2021), indicating that there was no multicollinearity among the variables. Then the assumed causal relationships through the bootstrapping technique were examined. The results were not significant, except for one construct (see Table 4) denoting that only one hypothesized path was empirically supported. The R^2 coefficient showed that intention to use hotels' sustainable practices explained the variance by way of (a) EE, (b) PC, (c) PE, (d) SI, and (f) TTF. The Q^2 coefficient for intention to use hotels was 0.20. Results of the final structural model and the path coefficients are presented in Table 4 and Figure 2 accordingly.

11. DISCUSSION AND CONCLUSIONS

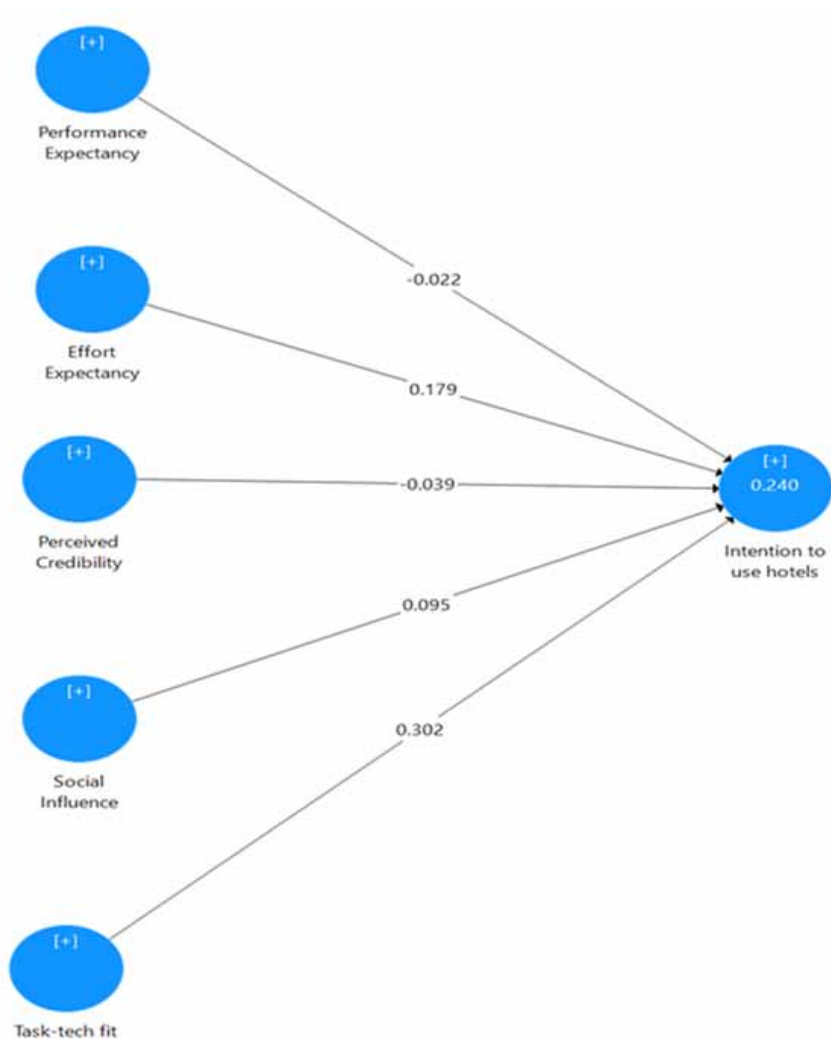
According to the findings of the current study and based on the path coefficients results, the support for TTF (facilitating conditions) is confirmed by the UTAUT but PE, EE, PC, and SI are not. Therefore, the results of the current study's examination of the five hypotheses are as follows:

Hypothesis 1 is rejected, meaning that there is no positive correlation between PE and intention to stay in sustainable hotels after the onset of the COVID-19 pandemic.

Table 4. Path coefficient

Relationship	Path coefficient	T-value	95% Bias Corrected CI	p-value	Supported
EE -> Intention to use hotels' sustainable practices	0.179	1.58	[-0.031- 0.393]	0.11	No
PC -> Intention to use hotels' sustainable practices	-0.039	0.61	[-0.171- 0.075]	0.54	No
PE -> Intention to use hotels' sustainable practices	-0.022	0.28	[-0.173- 0.121]	0.78	No
SI -> Intention to use hotels' sustainable practices	0.095	1.08	[-0.065- 0.264]	0.28	No
TTF -> Intention to use hotels' sustainable practices	0.302	2.46	[0.061- 0.539]	0.01	Yes

Figure 2. Path coefficients



Hypothesis 2 is rejected, meaning that there is no positive correlation between EE and intention to stay in sustainable hotels after the onset of the COVID-19 pandemic.

Hypothesis 3 is rejected, meaning that there is no positive correlation between SI and intention to stay in sustainable hotels after the onset of the COVID-19 pandemic.

Hypothesis 4 is rejected, meaning that there is no positive correlation between PC and intention to stay in sustainable hotels after the onset of the COVID-19 pandemic.

Hypothesis 5 is accepted, meaning that there is a positive correlation between TTF (or facilitating conditions) and intention to stay in sustainable hotels after the onset of the COVID-19 pandemic.

Although guests believe the hotels' sustainable practices are effective in preventing COVID-19, this belief does not have a direct effect on their intention to utilize these practices. In another word, PE does not directly affect the intention to use these practices.

In addition, regardless of the guests' efforts to utilize the hotels' sustainable practices during the pandemic, these efforts do not have a direct impact on their intention to utilize these practices. Thus EE has no direct effect upon intention.

SI also has no impact on guests' intention to utilize sustainable practices in the COVID-19 era, similar to PC. As the results indicate, even though guests are confident about the trustworthiness of the sustainable practices against the pandemic, this fact does not have a direct impact on their intention to utilize these practices.

However, since guests believe that the existing structure is supportive during the pandemic, TTF has a direct impact on guests' intention to utilize such practices during their hotel stay. This aligns with the findings of the study conducted by Venkatesh, et. al. (2003).

Overall the results show that hotel guests, in general, do not have positive intentions for adopting sustainable practices in the pandemic era, even though they believe that the existing structure is supportive of COVID-19. This raises the question, how should hotels adjust to this situation?

Hotels could improve guests' motivation through fundamental investment in hotels' infrastructures. Addressing Legrand's (2020 b) concern would be the principal starting point for hoteliers to consider, what mechanisms and resources are necessary and how do we go to activate a green recovery in hospitality?

As previous studies have indicated, it is important to utilize the technology to lessen employee and guests' contacts, such as hotels' contactless check-in and check-out systems, digital key systems, etc. (Shin & Kang, 2020). As Carlino (2020) discussed, utilizing advanced cleaning technologies such as electrostatic sprayers and UV-C technology is an appropriate solution for sustainable cleaning. Advanced HVAC, which evidence suggests lowers the transmission of COVID-19, includes the installation of UV lights, HEPA filters, oxidation systems, and ionization systems (Carlino, 2020). Thus, using these types of technology reduces actual and perceived health risks while provides the chance to stay and practice sustainability (Shin and Kang, 2020).

The present study's results are useful for hospitality firms seeking to overcome and regain market share after the COVID-19 pandemic crisis. By revealing guests' perceptions and concerns in the pandemic era related to sustainable practices, this study supplies essential information for service providers seeking to re-define and re-design their sustainable services based on the COVID-19 experience to meet the demands of the future.

12. THEORETICAL AND PRACTICAL CONTRIBUTIONS

This study contributes to addressing the specific needs and demands raised by the pandemic crisis in the hospitality industry, which has so far been mostly focused on financial catastrophes. It has numerous theoretical implications. First, it contributes to the evidence supporting the use of UTAUT theory through effective application to explain the substantial role of guests' intentions to use the available information resources and the subsequent usage behavior.

As Shin and Kang (2020) stated, the pandemic has forced the hotel industry to implement new operating practices to provide guests with an instant sense of protection. In this light, the second contribution of the current study is its emphasis on the importance of tailored sustainability initiatives for hotel risk management teams to lessen guests' health concerns. As harbingers of the significant post-pandemic evolution that the hotel industry will experience, the findings of this study propose useful practical implications based on guests' desires and demands.

Addressing the sustainability practices that communities, guests, staff, and management need, is a burden of the hospitality industry. Hotel managers should seek to offer safe yet sustainable service, but to do so they must understand guests' perception of safe sustainable practices. The findings of this study should prove useful as hotel managers navigate the challenging situation of finding the best balance of being safe while practicing sustainability initiatives.

13. LIMITATION AND FUTURE RESEARCH OPPORTUNITIES

While the results provide valuable results, this study's application to a broader framework should be considered. Like all other studies related to the current pandemic, the main limitation of this research is the unknowns of the pandemic.

In addition, since the current study adopted a quantitative, the results can not be generalized to the population. Another limitation is that only US hotel guests participated in the study, calling for extra care in generalizing to other populations. Future research might disaggregate results according to the type of hotel guests (leisure or business travelers), hotel classification, and guests' cultural backgrounds.

The respondents were contacted via the Qualtrics platform, making the sample a convenient one. Alternative sample collection methods could bring a more diverse pool of participants to the study. The emphasis of the current study is on UTAUT, which led to the evaluation of the impact of PE, EE, PC, SI, and TTF on hotel guests' intention to support hotels' sustainable practices after the onset of the COVID-19 pandemic. In the future, researchers can take different variables of the current study and expand the investigation from different perspectives. Perhaps qualitative surveys would bring a more profound understanding of the topic and help enhance the literature.

Since the pandemic-related situation is evolving constantly, the variables that are examined for this study may not be as critical in the future. Frequent studies about guests' post-pandemic preferences will help to predict the demand of the hotel industry in the future. This study is just one effort to bring researchers' and experts' efforts together to deal with the ongoing crisis in the lodging industry; this should be an ongoing effort as the situation develops.

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