

Sustainability and Technology Influence Towards Hotels Guest Satisfaction

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ABSTRACT

Sustainability and Technology are two main ingredients in tourism development nowadays. Hotels need to incorporate these two components into the operation. This study aims to examine the relationship between sustainability attitude, technology influence, perceived green value, and perceived technology innovativeness towards guest satisfaction. The causal study using the Quantitative data collection is employed in this study. The data was collected from 228 respondents using Google Forms the data was analysed using multiple regression analysis. The result showed that 2 variables of Sustainability Attitudes and perceived technology innovativeness are significant to guest satisfaction. Meanwhile, the perceived green value and social media influence were not associated with guest satisfaction. This study highlights that the management should emphasize more on sustainability, and they must look at the technology influence, especially in social media. This will help to give the benefits to the hotel. From an academic perspective, this study highlights that the influences of sustainability and technology may have an impact on guest satisfaction. Future research should focus on other variables that may influence guest satisfaction and look at other technology adoption in the hotel industry.

Keywords: Sustainability, guest satisfaction, hotel industry, technology.

INTRODUCTION

Sustainability and technology are two elements that are very important nowadays. The hospitality industry worldwide is urged to take an active role in leading the change towards economic, social, and environmental sustainability [1]. Meanwhile digitalization and technology adoption is also important for the industry [2]. This indicates the importance of economic, social, environmental, and technologies for the hospitality industry.

In the hospitality industry. Sustainability becoming a major concern due to the cost of implementation. The hotel industry cannot afford sustainability systems or is still making slow progress in adopting such methods [3]. Indeed, the operations of hotels in the surrounding region have impacted the surrounding environment and the communities [4]. Therefore, all businesses in the hotel industry maintain their commitment to the sustainability standards they have established [5]. Sustainability practices in the hotel have become essential in influencing consumer attitudes and behaviours [6]. This includes their perceptions, satisfaction, decision-making process, and loyalty [7]. This indicates the importance of sustainability for the hospitality industry.

Other than sustainability, technology adoption is also crucial in hotel operations. Information technology (IT) systems have changed the way businesses operate in the hotel industry [8] allowing hotels to reach customers directly [9] enhance their competitiveness and improve their organizational performance [10]. Additionally, the decision of hotel managers in terms of increasing IT investments depends on how they perceive the use of such technologies. In other words, the more positive their attitudes are, the more likely they are to invest in IT [11].

The hotel industry is encouraged to be involved in sustainability and the use of technology due to demand by the guests. However, the perception of guests on technology and sustainability adoption is still limited and the study on this concept is still minimal. Therefore, the objectives of this study are:

RO1: To examine the relationship between Sustainability Attitudes and guest satisfaction

RO2: To examine the relationship between Technology Influence and guest satisfaction

RO3: To examine the relationship between Perceived Green Value and guest satisfaction

RO4: To examine the relationship between Perceived Technology Innovativeness and guest satisfaction

LITERATURE REVIEW

Hospitality industry is unique. The component of the hospitality industry is the accommodation [12]. The hotel industry is the supplier of the tourism industry which shows the increasing demand nowadays. In Malaysia, for the year 2023, Malaysia's hotel room supply experienced healthy growth of 4.1%, increasing from 320,700 to 333,780 rooms [13]. In 2023, there were around 5,200 hotels in Malaysia [14]. With the increasing number of supply hotels in Malaysia, the demand factors among the guests are also important. The guest satisfaction is very important to ensure the competitive advantage of the industry.

Guest Satisfaction

The service providers are required to give exceptional value to the customers [15]. The good values will give satisfaction to the guest. Some of the benefits that satisfied guests can bring to service providers are increased loyalty, positive word-of-mouth advertising, and higher prices paid by the guests themselves [16]. As a result, the topic of guest satisfaction has received a lot of interest from scholars and businesspeople alike. There are many factors that lead to guest satisfaction in the hospitality industry [17,18]. The guest satisfaction can increase customer loyalty, repurchase intention, and positive WOM, and consequently, contribute to higher profitability [18].

Sustainability attitudes

Sustainability refers to multiple economic, environmental, and sociocultural policies and practices implemented by governments, businesses, or NGOs, such as environmental protection, containing climate change, favouring the local economy, poverty elimination, or social sustainability in terms of health, human rights, and ethical issues, among others [19]. Previous studies focus on sustainability from the suppliers' perspective and local communities [1]. Meanwhile the perspective of guests is still limited. The sustainability orientation varies [20]. The guest attitudes towards hotel sustainability may reflect the guest satisfaction at the hotel. Therefore, the following hypothesis is examined:

H1: There is a significant relationship between sustainability attitudes and guest satisfaction at the hotel.

Perceived Green Value

The term 'green practices' refers to "actions that reduce the environmental impact, such as eco-purchase and recycling" [21]. There are many practices related to the hotel green including 1. Reuse Product, 2. Protect air quality, 3. energy efficiency, and 4. Water efficiency [22]. The guest's perceived green value to the hotel may affect the guest satisfaction. Therefore, the following hypothesis is examined:

H2: There is a significant relationship between perceived green value and guest satisfaction at the hotel.

Social media Influence

The development of technology, such as social media, contributes to expanding individuals' social and information worlds [23]. Social media are built on the ideological and technological foundations of Web 2.0,

which enables the creation and exchange of user-generated content [24]. The influence of social media can reflect the hotel's performance depending on the promotion by the hotels. Social media influence may affect guest satisfaction. Therefore, the following hypothesis is examined:

H3: There is a significant relationship between social media influence and guest satisfaction at the hotel

Perceived technology innovativeness

Hotels that are perceived as technologically innovative may gain a competitive edge in the market, attracting tech-savvy travellers who value such features in their accommodation choices [25]. A smart hotel embraces cutting-edge technologies to provide operational excellence to meet the needs of the consumers of the future [26]. The guests' perceived technology innovativeness may reflect their satisfaction at the hotel. Therefore, the following hypothesis is examined:

H4: There is a significant relationship between perceived technology innovativeness and guest satisfaction at the hotel

METHODOLOGY

This study used causal quantitative methods aimed to examine the relationship of four determinants affecting guest satisfaction at four state hotels in Terengganu, Malaysia. Convenient sampling was used, and 228 respondents were used in this study. The structured questionnaire is used and online distribution is given to the guests that have experience staying at these four hotels. Data is analysed using the SPSS for demographic profile and multiple regression for hypothesis testing.

A pilot study was conducted involving a total of 30 randomly selected respondents. The reliability result found that the least Cronbach's Alpha has a reliability of 0.794, while the maximum is 0.952. This indicates the items used in this study are reliable enough to be examined.

DATA ANALYSIS AND DISCUSSION

Demographic Profile of the Respondents

Table 1 presents demographic data of study participants categorized by gender, age, and locality. Among the 223 respondents, 56.5% are male (97 participants) and 43.5% are female (126 participants), indicating a higher representation of females. The age distribution reveals that a significant majority, 91.9% (205 participants), are in the 21-30 age group, while only 8.1% (18 participants) are aged 31-40, suggesting a focus on younger adults. In terms of locality, the sample is fairly balanced, with 51.1% (114 participants) from urban areas and 48.9% (109 participants) from rural regions. This demographic breakdown highlights the youthful nature of the sample and provides context for the study's findings.

Table 1: Demographic profile of respondents

Variables	Category	Frequency	Per cent
Gender	Male	97	56.5
	Female	126	43.5
Age	21-30	205	91.9
	31-40	18	8.1
Locality	Rural	109	48.9
	Urban	114	51.1

Descriptive Analysis of Variables

Table 2 displays descriptive statistics for several key variables related to guest satisfaction and perceptions. Guest satisfaction has a mean score of 23.37, with a standard deviation of 2.117, indicating a generally high level of satisfaction but some variability among respondents. Sustainability attitudes score higher, with a mean of 26.72 and a standard deviation of 2.643, suggesting a strong inclination towards sustainable practices among guests. In contrast, social media influences have a lower mean of 19.59 and a standard deviation of 1.077, implying that while technology does affect guest perceptions, its impact is less significant than that of sustainability. The perceived green value averages 10.15, accompanied by a standard deviation of 2.092, indicating a moderate recognition of eco-friendly practices. Finally, perceived technology innovativeness has a mean of 10.65 and a standard deviation of 2.409, suggesting a slightly more favourable view of technological advancements. Overall, these figures provide valuable insights into how guests perceive satisfaction, sustainability, and technology within their experiences.

Table 2 : Descriptive analysis of variables

Variables	Mean	Standard Deviation
Guest Satisfaction	23.37	2.117
Sustainability Attitudes	26.72	2.643
Social media Influences	19.59	1.077
Perceived Green Value	10.15	2.092
Perceived Technology Innovativeness	10.65	2.409

hypothesis testing

The study employed regression analysis to determine the primary elements that had a substantial impact on guest satisfaction in the hotel industry, aligning with the research purpose. This study employed multiple regression techniques to gain a more comprehensive understanding of the correlation between the independent variables (Sustainability attitudes, perceived green value, social media influence, and perceived technology innovativeness) and the dependent variable (Guest satisfaction).

Table 3 presents the results of a regression analysis, detailing the model's fit and significance. The regression model explains a sum of squares of 475.148 with 4 degrees of freedom (df), resulting in a mean square of 118.787. This is associated with an F-value of 31.442, indicating a statistically significant relationship between the variables in the model, as evidenced by a p-value (Sig.) of .00, which is well below the conventional threshold of 0.05. Overall, the results suggest that the regression model effectively captures a significant portion of the variability in the data

Table 3: Regression analysis

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	475.148	4	118.787	31.442	.00b
	Residual	842.479	223	3.778		
	Total	1317.627	227			

*Dependent Variable: Guest Satisfaction

*Predictors: (Constant), Sustainability Attitudes, Technology Influences, Perceived Green Value, Perceived Technology Innovativeness

Table 4 summarizes the results of a regression analysis, showcasing the relationships between various predictors and the dependent variable. The unstandardized coefficients (B) indicate the amount of change in the dependent variable for a one-unit change in each predictor, while the standardized coefficients (Beta) provide a comparison of the relative importance of each predictor.

The constant term has a value of 2.355, but its significance (Sig.) of .338 suggests it is not statistically significant. Among the predictors, Sustainability Attitudes have a positive unstandardized coefficient of .225, indicating that an increase in sustainability attitudes is associated with a rise in the dependent variable, and this effect is statistically significant ($p = .006$). Conversely, the Perceived Green Value shows a negative coefficient of -.101, although this is not statistically significant ($p = .115$), suggesting no strong evidence of its impact.

Technology Influences also have a negative coefficient of -.045 with a significance level of .752, indicating that this variable does not significantly affect the dependent variable. Lastly, Perceived Technology Innovativeness exhibits a strong positive coefficient of .652, with a highly significant p-value of .000, indicating that this variable has a substantial and statistically significant impact on the dependent variable. Overall, these results highlight the varying influences of sustainability attitudes and perceived technology innovativeness, while the other factors appear less impactful.

Table 4: Coefficient value

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.355	2.451		.961	.338
	Sustainability Attitudes	.225	.082	.198	2.756	.006
	Perceived Green Value	-.101	.064	-.111	-1.581	.115
	Social Media Influences	-.045	.144	-.020	-.316	.752
	Perceived Technology Innovativeness	.652	.062	.567	10.525	.000

DISCUSSION

Table 5 highlights the result summary of this study. The results indicate that guest sustainability attitudes and their perception of perceived technology innovativeness have significant impacts on satisfaction at the hotel. The result of this study determines that guest hotels are demanding green hotels and smart hotels, but from the individual perspectives, the guests still do not imply the importance of green value and technology influence in their behaviour.

Table 5: result summary

Objective	Hypothesis	Finding
1. To examine the relationship between Sustainability Attitudes and guest satisfaction	H1: There is a significant relationship between sustainability attitudes and guest satisfaction at the hotel	YES

2. To examine the relationship between Technology Influence and guest satisfaction	H2: There is a significant relationship between perceived green value and guest satisfaction at the hotel.	NO
3. To examine the relationship between Perceived Green Value and guest satisfaction	H3: There is a significant relationship between social media influence and guest satisfaction at the hotel	NO
4. To examine the relationship between Perceived Technology Innovativeness and guest satisfaction	H4: There is a significant relationship between perceived technology innovativeness and guest satisfaction at the hotel	YES

The first hypothesis examines the significant effect of sustainability attitudes and guest satisfaction at the hotel. This study examines the guest perception of hotels that focus on environmental protection, social responsibility, and elements of local culture, provide educational meaning, and hotel that can enhance the travel experience. The results indicate that guest prefers to have a hotel that implies these sustainability elements in their premises. The result is in line with [20] indicates that hotel with sustainable orientation vanishes with business experience. Hence this study highlights that hotels need to incorporate sustainability elements in their premises.

The second hypothesis examines the social media influence on guest satisfaction. This study examines the guest perception of social media usage in choosing the brands including convenient access to hotel information, comparison of various brands, benefits, and positive effects from the usage of social media in choosing the hotels. The result indicates that social media usage has a less significant impact on guest satisfaction. This indicates that guests at the hotels did not fully use social media in deciding to choose the hotels. In the study [23], social media usage for socializing is helpful for individuals in transforming their experiences into intelligence, meanwhile for informational social media usage does not influence people's behaviour. As this study is examined from an information perspective, it is in line that social media is not the informative material preferred by the guest that affected their satisfaction.

The third hypothesis examines the guest perception of green value that affects their satisfaction. This study examines the guest perception of the hotel's application of refill soap dispensers, leaflet display, use of key cards, recycling program, advice on reusing linens and towels, and the designation of the smoking area. The result showed that the perceived green values at the hotel do not have a significant effect on guest satisfaction. The hotel needs to move to green hotels to improve guest satisfaction levels. Previous study shows that the higher facility of green products provided by the hotel can increase customer satisfaction level, then the hotel is expected to imply a hotel that has green branding through the application of green product principles to achieve a green competitive advantage in winning business [22]. Therefore, hotels need to move to green hotels to ensure that guest satisfaction will increase.

The final hypothesis examines the effects of Perceived Technology Innovativeness and guest satisfaction. This study examines the guest perceptions of the usage of technology at the technology including fewer problems with technology adoption, use of the latest technological development, and acceptance of IOT technology at the hotel. This is related to smart hotels and a previous study confirmed that the perceived performance of a smart hotel is essential in generating individuals' favourable attitudes and positive word-of-mouth intentions [26]. This study found that the variables have a strong significant impact on guest satisfaction. This showed that hotels need to implement smart hotels to increase guest satisfaction.

CONCLUSIONS

This study examines the effects of sustainability attitudes, perceived green values, perceived technology innovativeness, and social media influence on guest satisfaction. The result showed that guest sustainability attitudes and perceived technology innovativeness have significant impacts on guest satisfaction. This indicates that guest behaviours nowadays are influenced by sustainability and technology innovativeness.

Meanwhile, perceived green values and social media influences have a lower impact on guest satisfaction. This highlights that hotels need to move to green hotels and social media can be used effectively not only for information but also for socializing purposes.

The implications of this study are important for the innovativeness of Green Hotel and Smart Hotel from the guest perspectives. The result will help the managers and hospitality industry to make a strategy for marketing the hotel using sustainability and technology influences. Meanwhile, this study also highlighted that young generations are particular towards innovation in sustainability and digitalization. Additionally, the hotels need to incorporate strategies to ensure that green hotels and smart hotels can affect guest satisfaction. From an academic perspective, this study added knowledge on sustainability and digitalization components towards guest satisfaction. The chosen variables can indicate the guest perception that may affect satisfaction in the hospitality industry.

Future studies can focus on other variables that are related to technology adoption other than social media such as robots, online check-in, and other technologies that relate to smart hotels. Additionally, the green value also can be examined from other practices that are related to the hotels. This study also highlights guest behavior on sustainability and technology. The future studies can examine more elements of sustainability and technology that may affect guest satisfaction. , guest loyalty, hotel performance, and revisit intention are also significant from the sustainability and technological influences. Additionally, this study suggest the future study can be generalized to bigger scope of hotel due to the limitation of this study. Finally, this study also suggested future study could enhance the study to qualitative methods to verify the result from the qualitative perspectives.

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