



### Article The Effect of Green Certificates on the Purchasing Decisions of Online Customers in Green Hotels: A Case Study from Saudi Arabia

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**Abstract:** Customers are becoming more concerned about the use of green practices in the hotel industry. Managers are therefore starting to recognise the significance of green practices for clients' purchasing decisions and levels of satisfaction. This study aims to investigate how customers' decisions to book green hotels online and make purchases are impacted by green certificates. Two variables, namely the intentions to return and to pay a premium price, are used to measure customer satisfaction and purchasing behaviour towards green hotels. SmartPLS has been employed to analyse data gathered from 161 individuals from two hotels in Saudi Arabia. The results suggest that green certifications, environmental considerations, and green brand perception have a significant impact on online customers' satisfaction and purchase choices in the hotel sector. This paper provides a comprehensive framework that illustrates the connection between hotels' aspirations towards environmental concerns and customers' willingness to revisit and pay a premium price.

Keywords: green certificates; green hotels; sustainability; hospitality; tourism



Citation: Qubbaj, A.I.; Peiró-Signes, A.; Najjar, M. The Effect of Green Certificates on the Purchasing Decisions of Online Customers in Green Hotels: A Case Study from Saudi Arabia. *Sustainability* **2023**, *15*, 5892. https://doi.org/10.3390/su15075892

Academic Editors: Diego Monferrer and Jun (Justin) Li

Received: 24 January 2023 Revised: 9 March 2023 Accepted: 20 March 2023 Published: 28 March 2023



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### 1. Introduction

The terms "sustainability" and "green" have become the lexicon of environmentally conscious hotels in the hospitality industry. Potential customers and hotel guests are becoming increasingly concerned about the integration of green practices in the hotel sector. Therefore, managers are realising the significance of green practices for customers' purchasing decisions and satisfaction levels (Lee, Lee, and Gunarathne, 2018) [1]. There has been an increase in the number of green hotels in Saudi Arabia, with more than 200 hotels representing themselves as eco-friendly on the travelmyth.com website (Eco Friendly Hotels in Saudi Arabia, n.d.). [2]. Some of them already have international green certificates such as Green Key (greenkey.global), including Radisson Blu Residence in Dhahran, Radisson Blu Resort Jizan, Radisson Blu Hotel, DhahranPark Inn by Radisson Al Khobar, and Radisson Blu Hotel, Yanbu. This growth represents the increasing interest of customers in implementing green practices in the hospitality industry, which has boosted the number of green certificates in the hotel sector.

Choi et al., (2019) [3] posit that green certifications, which were originally developed to enhance the environmental performance of hotels, attempt to better manage hotels' environmental and green practices. Achieving a green certificate allows hotels to obtain marketing leverage, which may increase their financial performance. The digital customer is technologically aware when it comes to searching for green hotels through reliable sources of accreditation such as green certificates (Customers Income: Exploring Customers' Willingness to Pay Towards Green-Rated Hotels, 2019) [4]. In developed countries, tourism planning has appropriate infrastructures that promote the preservation of the natural environment in a responsible and organised manner. This could eventually improve the

financial gains and the quality of the visitor experience. Green certificates could also be beneficial for hotels through enhancing and streamlining their environmental performance, thus assuring customers that their stay will be environmentally benign (Navarro, 2020) [5].

This research attempts to examine the effect of green certificates on customers' online purchasing decisions in the hospitality hotel industry in Saudi Arabia. This study adds to the body of knowledge related to how green certificates affect the hotel sector. First, it examines how the green certificate affects hotel clients' online purchasing choices. Second, it assesses how customers feel about green hotels and how this affects their behavioural intentions, such as their willingness to return and their intention to pay a higher price. Hotels can demonstrate their compliance with good environmental management practices by obtaining green certificates. Recent works have also revealed that green credentials have favourable economic effects on the hotel industry (Jeong and Jang, 2010). [6]

Adopting a green certificate strengthens the hotel's links to its external and internal stakeholders, regulatory bodies, the general public, and its staff. This may help the hotel project a favourable green image while increasing its financial gains (Jiang, 2019). [7]

#### 2. Literature Review and Development of Hypotheses

Green certificates for hotels include Earth Check, Green Globe, Leadership in Energy and Environmental Design, Green Key, and the Global Sustainable Tourism Council certification (Green Hotel Certifiers | Green Tourism Certifiers | CertifiedGreen | Green Traveller Guides, n.d.). These certificates demonstrate a hotel's commitment to sustainable practices and environmental responsibility, including energy conservation, waste reduction, water management, and community engagement. They can also attract environmentally conscious guests who are willing to pay a premium for eco-friendly accommodations. In addition, green certificates can also contribute to the hotel's branding and reputation as a socially responsible and environmentally conscious establishment. Additionally, obtaining a green certificate can lead to cost savings for hotels in the long run by reducing energy and water consumption and minimising waste, which can also benefit the environment (Demiral, 2017) [8].

The idea that green practices adopted by hotels may lead to increased customers' satisfaction is a common theme of many studies in this field (Kim et al., 2019) [9]. Steg and Vlek (2009) [10] highlighted that motivational (i.e., the benefits and perceived cost along with morale and normative concerns) as well as various contextual factors play a significant role in promoting environmental behaviours. Therefore, green hotel management practices can significantly increase customers' environmental intentions (Nelson, Partelow, Stäbler, and Graci, 2021) [11]. Consumers wholook for information about hotel corporate social responsibility (CSR) activities and are more aware of hotel sustainability have a higher willingness to pay more to stay in a sustainable hotel (Navarro, 2020) [5].

When environmentally conscious customers choose to buy eco-friendly services, they are concerned about the environmental impact of their actions; that is, the more environmentally friendly the services are, the easier it is for such customers to form a favourable opinion and thus make a purchase decision (Jiang, 2019) [7]. In fact, sustainability-related green certificates play an important role in determining the likelihood of a customer visiting a sustainable hotel and increase favourable intention (Ettinger, Grabner-Kräuter, and Terlutter, 2018) [12]. Customers' attitudes to green hotels influence their purchase decisions and associated behaviour. Their environmental understanding has a significant impact on their willingness to support green measures and their overall opinion of green hotels (Jiang, 2019) [7]. Hotel customers' behavioural intentions are positively affected by a green hotel image. Ryu (2012) [13] highlighted that the brand image can significantly impact the purchasing decision of online customers in the hospitality industry. Similarly, Abrate, Pera, and Quinton (2020) [14] argued that brand image is an important antecedent of customers' online purchasing decisions.

Allameh (2015) [15] showed that customers' satisfaction is the fundamental determinant of their long-term purchasing decisions and behaviours. In the hotel industry, green certificates play an important role in influencing consumers' satisfaction (Jin, 2013) [16]. Environmental hotel measures can boost client satisfaction, resulting in a strong, positive association between "green" operations and consumer gratification (Moise, 2018) [17]. The relationship between the adoption of green certificates and customers' online purchasing decisions, along with their satisfaction level, has been given limited attention in existing research. This study attempts to explore this relationship, and therefore, we hypothesise:

**H1:** There is a significant positive association between a hotel's achievement of a green certificate and customers' attitude towards green hotels (ATT, in terms of satisfaction and willingness to make future reservations).

Customers' environmental awareness influences green purchasing behaviour through affecting their views. Customers prefer to stay in sustainable hotels when they are aware of their policies (Navarro, 2020) [5]. Green certificates influence future online purchasing decisions through creating greater willingness to revisit the hotel (Jin, 2013) [16]. Chen (2010) [18] argued that investments in green practices, such as attaining green certificates, not only reduce hotels' negative impact on the environment but also improve their corporate image. To create a green hotel image, "it is necessary to include (functional and emotional) green positioning into hotel operations" (Lee et al., 2010) [19]. Positive brand image plays a significant role in the competitive strategy of the firm. It creates a customer experience that is more gratifying (Lai, 2009) [20], increasing customers' willingness to revisit the hotel. In addition, a positive image becomes a valuable operational instrument for recruiting and maintaining more visitors (Chen, 2010) [18].

Lee, Hsu, Han, and Kim (2010) [19] carried out research to investigate customers' and other people's perceptions of green hotels. They sought to understand the effect of green image on the behaviours of potential customers of hotels. Potential customers tend to perceive green hotels in a positive manner. In addition, a green image plays an important role in attracting customers to a hotel. With the implementation of precise marketing tactics and strategies, it becomes possible for green hotels to ensure that the desired number of customers will increase. A number of questions were considered by the authors for the identification and evaluation of perceptions of people regarding green hotels. Some of these questions were as follows. Do you want to stay at a green hotel? Do you prefer a green hotel? Do you think there should be more green hotels? Do you see advertisements for green hotels? Were you previously aware of green hotels? (Lee, Hsu, Han, and Kim, 2010.) [19].

# **H2:** There is a significant positive association between attitudes towards green hotels and the intention to visit/revisit them.

Green hotels have significant operational expenses, which affect the price of the goods and services supplied. Consumers' willingness to pay for these goods and services will be influenced by high prices. When consumers believe in the benefits of green hotel services, they will be prepared to pay for any of these services, regardless of the additional financial costs (Adiasih, 2019) [4]. However, online customers' willingness to pay extra premium prices for a hotel with a green certificate presents mixed results (Kucher, Hełdak, and Raszka, 2019) [21]. Some researchers found that online customers are willing to pay a higher price to reward hotels for their ethical behaviours (Zhang and Dong, 2020) [22]. However, Rahman (2018) [23] has highlighted that customers have different preferences for green hotels. The author found that there is a lack of research that actually determines whether customers are willing to consider the use of green hotels and pay a premium price. Kumar et al., (2021) also corroborated Rahman's (2018) [23] findings by concluding that other investigators discovered that customers are price-sensitive, i.e., not willing to pay a premium price for adopting green practices. They believe that hotels must have ethical practices as part of their daily operations and should overcome the additional costs associated with the adoption of these practices. In light of this evidence, this study's

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null hypothesis is strengthened, as is the need to clearly determine whether there is a significant positive association among attitudes towards green hotels and the intention to visit/revisit them.

Karavasilis (2015) [24] performed research to determine and identify the perceptions of Generation Y towards green hotels. To understand what people thought and believed about them, the researchers conducted an empirical research study with the use of an online survey. A questionnaire was utilised for the investigation of what people thought about green hotels and what they should consider for improving their image and customers' awareness. It is important to note that the findings indicated that the respondents were highly conscious of the environment. However, they were not completely aware of the existence of green hotels. As a result, it has been determined that while people are willing to pay more for green hotels, they are not informed about their reputation (Karavasilis et al., 2015) [24].

# **H3:** There is a significant positive association between attitude towards green hotels and the intention to pay a premium (ITP) price for sustainable hotels.

In recent years, consumers have been increasingly looking for products and services that are created using sustainable techniques and contribute to environmental conservation (García-Salirrosas and Acevedo-Duque, 2022) [25]. Most hotels take environmental conservation seriously and strive to reduce their environmental effect through ecologically friendly measures. A recent survey found that 55% of guests were willing to pay more for an ecologically friendly hotel room (Yu, 2022) [26]. Furthermore, 70% responded that choosing an ecologically responsible hotel would affect their decision to book a specific hotel for a vacation or business travel. This shows that there is a high demand for eco-friendly hotels, and that hotels can grow their market share by improving their environmental performance. If a hotel's management wants to promote visitor pleasure and loyalty, it should embrace environmentally friendly practices and enhance its environmental performance by incorporating cutting-edge technology into its operations (Fonseca and Carvalho, 2019) [27]. Green accreditation is an official recognition of a hotel's dedication to ecologically responsible and sustainable business practices. It is an important marketing strategy for differentiating the hotel from competing properties and attracting more customers (Ostapenko, Bakumenko, and Usenko, 2020) [28]. Green accreditation from third-party organisations demonstrates a dedication to sustainability and environmental protection, as well as leadership in energy reduction and waste management (Foris, Crihalmean, and Foris, 2020) [29]. Marriott International's gold standard environmental sustainability programme, for example, has acquired the US Environmental Protection Agency's (EPA) Green Seal certification in acknowledgement of the company's efforts to decrease its environmental footprint and encourage ecologically sustainable practices (Marriott International News Center (US), 2021) [30]. By gaining these certifications, the hotel demonstrates its dedication to the environment while also strengthening its reputation as a good corporate citizen among clients. Hotels can embrace sustainable practices and advance their environmental performance, in addition to gaining certification from thirdparty organisations by implementing measures that promote energy efficiency and the use of renewable energy resources. These steps can minimise the amount of energy used by the hotel, resulting in lower greenhouse gas emissions and reduced operating expenses. It is possible to considerably reduce the quantity of garbage produced and the energy required by the hotel by making minor adjustments to its operations. It is also critical to educate hotel employees about sustainability initiatives and how these practices may benefit the environment while also saving money in the long run. As a result, green certification is a vital component of a hotel's environmental sustainability programme, and it may be a potent marketing tool for promoting the organisation's dedication to sustainability and environmental preservation.

**H4:** There is a significant positive association between a hotel's achievement of a green certificate and customers' intention to revisit (ITG) the hotel.

It goes without saying that hoteliers are constantly looking for methods to boost their revenues. In recent years, they have begun incorporating environmentally friendly methods into their operations to attract clients looking for eco-friendly accommodations (Serrano-Baena et al., 2020) [31]. One way in which hotels promote their "green" credentials is by obtaining green certification. According to one survey, more than 40% of green-certified hotels have experienced a rise in the number of clients requesting their rooms (Gu, 2022) [32]. This indicates the potential of attaining green certifications may actually enhance customers and increase earnings. Yet, whether green certifications may actually enhance customer spending at hotels remains to be seen. While research indicates that many consumers are ready to pay more for a green-certified room (Nelson et al., 2021) [11], it is unclear whether this translates into higher spending during the actual stay. However, it is undoubtedly a trend that will grow in popularity in the future. Green certificates will become more popular as more people become aware of the importance of environmental sustainability. Even a few years ago, few customers were willing to pay a premium for green-certified hotels.

However, as more people become aware of the benefits of being green, the demand for green certificates will rise. As a result, it stands to reason that the greater the number of individuals who are prepared to pay a premium for green-certified rooms, the more they will be willing to spend on other goods and services while staying at the hotel. A number of hotel operators have even devised novel techniques to entice guests to spend more money while staying with them. Some hotels, for example, provide a "green package" that includes free parking. Others allow them to use the hotel's electric car service during their stay. Some provide guests with discount certificates that are redeemable at neighbouring eateries and businesses. While these gimmicks are unlikely to raise guest spending significantly, they will undoubtedly assist in enhancing revenue by increasing sales in the hotel gift shop or restaurant. The end result is that green certifications can help businesses attract more customers and increase revenue. Hotel owners can not only attract new tourists but also retain existing ones by introducing eco-friendly measures in their operations. Hotels will be able to differentiate themselves from competitors and so grow their client base and profitability in the long run by offering a more engaging experience for guests (Pusparini et al., 2021) [33].

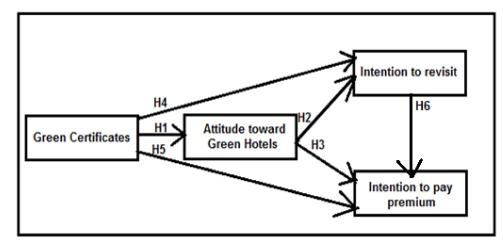
# **H5:** *There is a significant positive association between hotels' green certificates and customers' intention to pay a premium price for hotels.*

One study investigated the association between ecological hotel customers' loyalty and willingness to pay a premium price. It was discovered that there is a favourable association between customer loyalty to return to the hotel and the intention to pay more for the hotel's premium experience (Wang et al., 2019) [34]. However, there was no statistically significant association between the hotel's perceived environmental and social responsibility and customer loyalty or intent to pay extra for a premium experience provided by the hotel (Zheng et al., 2020) [35].

This implies that while customers may be prepared to pay more for a "green" hotel experience that is equally opulent and comfortable, social and environmental responsibility is not a major deciding factor in deciding whether or not to return to a hotel. This study also discovered that customer loyalty in terms of returning to an ecological hotel was positively connected with an appreciation of the hotel's ecologically responsible characteristics, but not with the willingness to pay a premium price for the experience delivered at the hotel.

## **H6:** *There is no significant association between the intention to revisit a hotel and to pay a premium price for to stay at sustainable hotels.*

Figure 1 illustrates the relationships among the variables. It has been observed that there is one independent variable, a mediating variable, and two dependent variables. The relationship between the variables will be tested using a survey questionnaire and SmartPLS analysis, which will be described in the methods section.



**Figure 1.** The conceptual framework of the research describing the relationships between variables. Note: intention to revisit is the same as intention towards green hotels.

#### 3. Methodology

#### 3.1. Introduction

Green hotels are properties that attempt to institute programmes to save energy and water, as well as to reduce the solid waste produced (Peiro, 2014) [36]. The focus of this research is on hotels that have won green certificates and obtained eco-certification, such as sustainable properties on booking.com.

The EPA awards green certificates to hotels and motels that take initiatives to lessen their environmental effect (Astawa et al., 2022) [37]. These efforts may include increasing energy efficiency, minimising waste, and supporting environmentally friendly practices.

The EPA grants Green Seal certification to hotels that meet specific requirements listed in their "Green Hospitality Assessment" handbook. The evaluation compares a hotel's operations and processes to "best practice" criteria. An accredited assessor conducts on-site inspections and surveys to check that the hotel is adhering to the EPA guidelines. Hotels are certified based on their total score and the number of areas where they fulfil the Green Seal Guide standards. Hotels that are certified must keep their accreditation status by meeting ongoing compliance standards (Green Seal, n.d.) [38].

Sustainability has become a major topic in several industries in recent years. The hotel industry is no different. When it comes to picking a hotel, one of the most crucial criteria is sustainability. So, what exactly is sustainability, and how does it impact the hotel industry? The definition of sustainability is straightforward. It is the continual ability to meet society's current requirements without jeopardising future generations' capability to meet their own (Giunta, 2017) [39]. Simply expressed, it is the ability to live in peace with environment while preserving the planet's resources for future generations.

What is its significance in the hotel industry? In recent years, the hotel sector has played a significant role in developing sustainable choices and offering environmentally friendly housing options to visitors as part of their whole experience. Many hotels throughout the world, for example, have implemented a variety of initiatives to lessen their environmental effect and become more socially responsible. Installing solar panels to create renewable energy and employing eco-friendly cleaning solutions are two examples. These techniques are not only more ecologically friendly, but they also help to save money and reduce energy bills in the long run. Hotel owners all around the world are seeing the numerous benefits of adopting more sustainable business practices and are beginning to implement a variety of programmes to assist their guests in reducing their environmental impact throughout their stay.

#### 3.2. Research Design

This section explores the methodology utilised to conduct this research. This study explores guests' intention to visit green hotels by analysing the effects of green certificates on the purchasing decisions of online customers in the hotel industry. It also analyses the green facts of the hospitality industry on attitudes towards green hotels.

This study adopts a descriptive and experimental research design. The descriptive research design discusses the previous literature on this particular theme and also explains the work of various authors to analyse the sustainable facilities of the hotel industry. The experimental research design includes the experiments that have been performed in the field to analyse particular aspects. This research is conducted by using the positivism research paradigm because it tests the hypothesis and information about the arguments. According to this research paradigm, the role of researchers is limited during the data collection procedure and it is a good way to test hypotheses (Ahmad and Zhang, 2020; [40] Churchill et al., 1979; [41] Cohen et al., 2017; [42] Easterby-Smith et al., 2008; [43] Eisenhardt and Graebner, 2007; [44]. Howitt, 2010; [45] Johnson et al., 2007; [46] Marczyk et al., 2005; [47] Thiétart, 2001; [48] Yin, 2018) [49].

The deductive research philosophy has been utilised in this research because it is based upon the theories of various researchers. After analysing different theories, the hypothesis has been developed. Then, a survey questionnaire—a quantitative approach—has been developed to test the hypotheses (Creswell, 2009; [50] Easterby-Smith et al., 2008; [43] Johnson et al., 2007) [46].

#### 3.3. Data Collection Procedure

The main source of data is survey responses from two of Riyadh's largest five-star hotels collected between March and June 2022. The Hilton Riyadh and the Hyatt Regency Riyadh Olaya are the two hotels. We choose guests from the top-rated hotels on booking.com, which have over 6000 and 10,000 reviews, respectively. These hotels are also identified as sustainable properties on booking.com, indicating that they have made significant efforts to provide more environmentally friendly and sustainable travel, relating to waste, water, and energy management, as well as greenhouse gas reduction, location and community, and nature (Hilton Riyadh Hotel & Residences, Riyadh, Saudi Arabia) [51].

The self-administrated questionnaire has been used as an instrument for data collection and is based on closed-ended questions. These questions have been developed according to a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5).

#### 3.4. Response Rate

After checking the surveys, only 161 usable surveys have been found to fulfil the requirement of this research (39 surveys have some missing information, and therefore, they have been rejected). The high response rate—80.5%—is due to the approach used by the researchers to collect data, which was based on using the drop and pick method with customers to fill in the survey. The response to the sample size for this research was 161 respondents from among hotel customers. The respondents were selected according to their gender, age, level of qualification, and annual income. Table 1 describes the distribution of the sample according to demographic variables. while Table 2 examines the different Indicators and related questions.

Variables	Variables Levels		Percentage
	Male	110	68.6
Gender	Female	51	31.7
	Total	161	100
	18–29	17	10.6
	30-45	57	35.4
Age	46-60	69	42.9
	Above 60	18	11.2
	Total	161	100.0
	Bachelor's	104	64.6
	Master's	39	24.2
Qualification	PhD	12	7.5
	Other	6	3.7
	Total	161	100.0
	Less than 20,000	53	32.9
Expected annual	20,000-40,000	53	32.9
income	More than 40,000	55	34.2
	Total	161	100.0

Table 1. Sampling distribution depending on the demographic variables.

Table 2. Indicators and related questions.

Indicator	Question Related to Variable in the Questionnaire
Green certificates a	and awards (GCA)
GCA1	As a visitor/tourist of hotel, it is essential to me that a hotel's services are "green"-accredited.
GCA2	I will go to a green hotel that has been awarded a green certificate and award.
GCA3	My attitude towards green hotels can be changed positively for a hotel that has been awarded the International Organization for Standardization 14001 standard.
Environmental cor	ncerns (ATT)
ATT1	I am aware of green hotels.
ATT2	I want to stay at a green hotel.
ATT3	I am aware of sustainability issues.
Intention towards	green hotels (ITG)
ITG1	It is worth paying for the service and quality of green hotels.
ITG2	I think green hotels have consistent quality.
ITG3	I think the services of green hotels are well-designed.
Intention to pay a	premium (ITP) for sustainable production
ITP1	It is worthwhile to choose green hotels when it comes to travelling.
ITP2	I believe it is economical to visit green hotels.
ITP3	I would pay more for green hotels.

### 4. Partial Least Squares (PLS)—Structural Equation Modelling Model Discussion

The evaluation of a PLS model is a process that involves two steps. First, we assess the measurement model's validity and reliability, and second, once we confirm that the model has been measured with confidence, we evaluate the structural model.

The measurement or outer model assessment consists of evaluating the relationships between the items (observable variables) and the constructs (latent variables). In our model, the items related to the different latent variables are configured as reflective measures. To assess the reliability and validity of the measures, we check the reliability of the indicators, the internal consistency, and the convergent and discriminant validity. To show the sufficient reliability of each indicator, each latent variable should explain more than 50% of the variance in a specific item; that is, item loadings should be greater than 0.7 (Chin, 1998) [52]. Internal consistency indicates that the items of a latent variable share sufficient variance among them (Fornell and Larcker, 1981) [53]. Internal consistency can be confirmed if composite reliability (CR) (Nunnally and Bernstein, 1994) [54] or rho-A (Dijkstra and Henseler, 2015) [55] values for each construct are higher than 0.7. Convergent validity indicates that the items represent the same latent variable, and it is evaluated using the average variance extracted, AVE (Fornell and Larcker, 1981) [53]. Accepted values of convergent validity should be above 0.5. Finally, discriminant validity indicates that each construct is sufficiently different from other constructs. Discriminant validity can be confirmed if the heterotrait–monotrait (HTMT) ratio of correlations (Henseler, Ringle, and Sarstedt, 2014) [56] is below 0.85. Table 3 shows the item loadings, AVE, CR, and rho-A values. Table 4 depicts the corresponding HTMT ratios for the model tested. All the values meet the suggested thresholds, indicating that the measurement model was assessed with confidence.

	Outer Loadings	CR/rho_A	AVE
GCA		0.856/0.762	0.665
GCA1	0.752		
GCA2	0.852		
GCA3	0.838		
ATT		0.904/0.844	0.759
ATT1	0.870		
ATT2	0.921		
ATT3	0.819		
ITG		0.813/0.867	0.685
ITG1	0.854		
ITG2	0.882		
ITG3	0.740		
ITP		0.801/0.882	0.714
ITP1	0.785		
ITP2	0.858		
ITP3	0.888		

Table 3. Measurement model indicators.

Table 4. Heterotrait-monotrait ratio (HTMT)matrix.

	ATT	ITG	ITP
ITG	0.587		
ITP	0.744	0.394	
GCA	0.757	0.661	0.785

Once the measurement model has been assessed, we evaluate the relationships in the model. The structural model is analysed through the analysis of the path coefficients, the coefficients of determination (R2), and the predictive relevance (Q2).

Figure 2 shows the results of the structural model. The path coefficients ( $\beta$  coefficients) corresponding to the partial regression coefficients are indicated on the arrows. The R2 values for the corresponding regression are shown inside the endogenous variables.

The standardised denotes the strength and direction of the causal relationships between two latent variables in the model. We use a bootstrapping resampling technique with 5000 samples to evaluate the significance of the relationships in the model. This allows for evaluating the *t*-statistics, *p*-values, and confidence intervals of the regression coefficients. Table 5 shows that all the paths in the model have a significant impact with a moderate or high magnitude, according to Chin (1998) [52]. We also check that the bootstrapping bias corrected and accelerated (Bca) the confidence interval distant from and not including the zero. We find the explanatory quality of the model moderate (Chin, 1998). The coefficients of determination (R2) suggest that the variance explained by the model exceeds the values suggested by Falk and Miller (1992) [57]. Finally, Table 5 includes the Q2 value that represents the ability of the model to predict the reflective indicator of the endogenous constructs. The Q2 values obtained using a blindfolding procedure are above zero, indicating a sufficient predictive relevance.

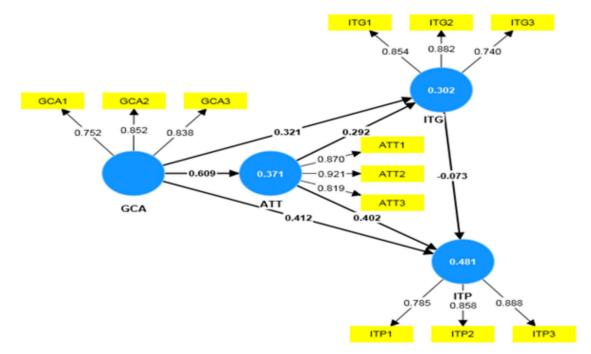


Figure 2. Structural model.

Table 5. Direct effects, explaine	d variances, and Q2 test	for endogenous variables.
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Effects on Endogenous Variables	Direct Effect (t-Value)	Bca 95% Confidence Intervals	R <sup>2</sup> /Variance Explained (%)	$\mathbf{Q}^2$
Effects on ITG			0.302	0.235
ATT	0.292 ** (2.819)	[0.076, 0.480]	14.2%	
GCA	0.321 ** (3.151)	[0.115, 0.515]	16%	
Effects on ITP			0.481	0.372
ATT	0.402 *** (5.371)	[0.251, 0.543]	24.87%	
GCA	0.412 *** (4.979)	[0.242, 0.565]	25.62%	
ITG	-0.073 (929) n.s.	[-0.227, 0.079]		
Effects on ATT			0.371	0.359
GCA	0.609 *** (10.365)	[0.475, 0.709]	37.1%	

\*\* means significant at p < 0.01. \*\*\* means significant at p < 0.001.

In this study, we wanted to see if green certificates increased the likelihood of returning and paying a higher price for a hotel room. The structural model confirmed the positive and significant relationships between these variables, confirming the findings of previous studies such as this one: "Exploring Recreational-Environment Fit Hospitality Experiences of Green Hotels in China", written by Yu and published in the journal Sustainability in 2022 (Yu, 2022) [26]. Gu has also confirmed these findings in his article "The Effects of Subjective Knowledge, Altruistic Value and Consumer Self-Confidence on the Green Purchase Attitudes and Green Purchase Behaviour of Chinese Customers", which was published in 2022(Gu, 2022) [32].

GCA positively and significantly affect ATT (H1:  $\beta = 0.609$ , sig. at p < 0.001). This attitude positively and significantly impacts (H2:  $\beta = 0.292$ , sig. at p < 0.01; H3:  $\beta = 0.402$ , sig. at p < 0.001) ITG and ITP. Therefore, green certifications positively influence the ITG andwhetherto pay a premium, which are aligned.

However, we wanted to evaluate if these relationships were mediated by the ATT. As stated in the hypothesis development, a hotel that follows a green certificate programme is typically one that is exceeding legal requirements. It is aware of its impact on the environment and wants to be excellent in areas outside of the financial part of the business. In other words, it has higher managerial standards, and therefore, it is supposed to already have a higher quality of services than similar hotels that do not have the same goals. We therefore assumed that green hotels will satisfy their customers more and the customers will have a higher ITG and pay a premium for those services. This may be termed the indirect effect or a rigid consequence of green certificates. On the other hand, we can expect that customers are aware and sensible regarding the environmental impact of hotels. With the number of people travelling becoming increasingly larger, it is no wonder that hotel customers now care more about the environment. In fact, according to a study performed by the Accor Group, 72% of hotel guests say that they would take an action that would help a hotel reduce its environmental impact (Environment & CSR—Accor) [58]. Furthermore, half of those hotel guests who completed the survey said that hotels should do more to minimise their environmental impact, and an additional 20% said that they were unaware that hotels could do anything to reduce their environmental impact. These statistics show that hotel customers are concerned about the environmental impact of their hotel stays and are looking for hotels to be more sustainable (Brandão and Cupertino de Miranda, 2022) [59]. This highlights the importance of making ahotel as eco-friendly as possible.

One way that a hotel can become greener is by adopting green energy. For example, the guests may not realise that a hotel is switching from traditional energy sources to green energy; however, they will be more likely to stay at a hotel if they know it is doing its part to reduce carbon emissions. Additionally, many customers want to support businesses that are sustainable and responsible. If they know that a hotel is using green energy sources and supporting environmental causes, they will feel more inclined to stay at that hotel in the future. As an added bonus, people may be willing to pay extra to stay at an eco-friendly hotel because they will feel good about supporting an environmentally conscious business. Overall, going green is a great way to reduce a hotel's impact on the environment and attract new customers (Amin andTarun, 2019) [60].

Another way to make a hotel more eco-friendly is to recycle as much as possible. Starting with the guest rooms, guests could be encouraged to reuse their towels and sheets during their stay to help reduce waste. Signs could be posted in hotel rooms to remind guests about the importance of recycling and what they can do to make a difference. Once guests are aware of the issues associated with climate change, they may decide to make a deliberate effort to be more environmentally conscious in their daily lives. As a result, the hotel can show them that it is located in a "green "area that is dedicated to protecting the natural environment and helping to combat climate change. Providing this information may encourage guests to choose that hotel the next time they need to stay in the area.

Therefore, we may assume that attitude in this sense is going to increasingly mediate the relation between green certificates and the main outcome variables in this study, ITG and to pay a premium. That is, green certificates increase the visibility of the environmental issues related to hotels and, therefore, the ATT. Customers that are more aware and appreciative of what green hotels are will be more willing to revisit these hotels and to pay a premium.

The positive and significant values in H4 ( $\beta$  = 0.321, sig. at *p* < 0.01) and H5 ( $\beta$  = 0.412, sig. at *p* < 0.001) confirmed a partial mediation of the ATT in the relationships between GCA, ITG, and ITP. Indeed, we can see that the variance explained by the direct relationships and the mediation through ATT are similar, both for ITG and ITP. The variance explained by the model is moderate, according to the previous studies explained in the literature review above.

Finally, we were unable to confirm any impact of the ITG on ITP (H6:  $\beta = -0.073$ , not sig.) as there was no statistically significant association between the hotel's perceived

environmental and social responsibility and customer loyalty with intention to pay extra for a premium experience provided by the hotel (Zheng et al., 2020) [35].

#### 5. Conclusions

This research has investigated the relationship between green certificates and customers' purchasing behaviours in the hotel industry. Green certificates influence customers' attitudes towards green hotels. A five-point Likert scale was used to measure the attitudes and behaviours of online customers. In addition, linear regression models were constructed to investigate the relationship between the variables. This research provides both theoretical and practical contributions.

From a theoretical perspective, this research adds to the body of knowledge related to sustainable hospitality and green practices. In particular, this study found that green certificates have a significant positive impact on the purchasing decisions of online customers in the hotel industry (attitudes towards green hotels). The positive correlation between the variables indicates that attitudes towards green hotels have increased alongside the surge in environmental concerns among customers. The relationship between attitudes towards green hotels and pay a premium is also significant and positive. Thereby, hotels with green practices are expected to have more customers and, eventually, a better competitive position in the industry. Hospitality entities should employ more green operations and sustainable practices (for example, the use of organic goods and fewer toxic chemicals, reprocessing, less energy consumption, and water-efficient fittings) to support their green reputation, which will, eventually, appeal to customers (Kim et al., 2019) [9].

From a practical perspective, environmental concerns playa substantial role in customers' intentions to visit green hotels. Therefore, hotel managers and marketers must understand how to present environmental statistics to customers to stimulate their interest in green hotels. Hotel customers who are environmentally conscious and have an adequate knowledge of eco-friendly practices in green hotels are more likely to visit and revisit green hotels. Green certificates related to sustainability play an essential part in determining the possibility of visiting sustainable hotels and generate favourable intention among customers (Chendo, 2021) [61].

Customers have more trust and confidence in hotels that are engaged in green practices to keep the environment safe and healthy. Green certificates motivate customers' willingness to pay a premium for green hotels, as they increase their trust in such hotels. Eventually, customers will show more interest in visiting and staying at green hotels. Their trust in hotels' green practices will encourage them to pay a premium and enhance their satisfaction (Gupta, Dash, and Mishra, 2019) [62].

Hotel visitors are becoming increasingly demanding in regard to green certifications as they become more aware of environmental challenges. Being environmentally friendly may strengthen the hotel industry's reputation and appeal to more clients. Hoteliers must combine sustainable practices with greater cleaning and hygienic procedures to meet the customers' new expectations, e.g., the challenges experienced during COVID-19. Hotels that adopt sustainable practices and align them with green operations are expected to have more customers. It has become pertinent for hotels to build their marketing strategy around sustainability because customers are more environmentally conscious and aware (Verma and Chandra, 2016) [63].

**Author Contributions:** Methodology, M.N.; Formal analysis, A.P.-S.; Writing—original draft, A.I.Q.; Writing—review & editing, A.P.-S. and M.N.; Supervision, A.P.-S. All authors have read and agreed to the published version of the manuscript.

Funding: This research was supported by two conference grants from Christian Heritage College.

Institutional Review Board Statement: Not applicable for studies not involving humans or animals.

Informed Consent Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

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