The Mediating Role of Differentiation Strategy in the Relationship between Green Innovation and Green Hotel Sustainable Performance

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Abstract

This research investigates the impact of green innovation on hotel sustainable performance. In addition, it explores the effect of green innovation on differentiation strategy and the impact of differentiation strategy on hotel sustainable performance. It also examines the mediation role of differentiation strategy in the relationship between green innovation and hotel sustainable performance in green star hotels in Egypt. Data was gathered via self-administrated questionnaire from 500 staff members in green star hotels. Data was analyzed by using Smart-PLS V. 4.0.8.7 and SPSS v.24. The findings confirmed the significant impact of the green innovation on differentiation strategy and hotel sustainable performance. Furthermore, this research addressed that differentiation strategy has a positive impact hotel sustainable performance. It also showed that the relationship between green innovation and hotel sustainable performance is partially mediated by differentiation strategy. The research's findings add to the body of literature by illuminating the ways in which green innovation and differentiation strategy can enhance hotel sustainable performance. In addition, this study offers practical implications that may help hotel's managers in adopting green innovation and differentiation strategy which in turn improve hotel sustainable performance.

Keywords: Green Innovation; Differentiation Strategy; Hotel Sustainable Performance; Green Star Hotels.

Introduction

Over the past few years, hotels have been under stress from stakeholders (i.e., customers and competitors) due to the continuous environmental concerns. As a result, hotels are compelled to become green due to these strict environmental requirements (Sun & Nasrullah, 2024). Environmental degradation is mostly caused by the hospitality industry. The hotel industry, like other industries, uses natural resources excessively, which has many negative repercussions on the environment (Riva et al., 2020).

In recent years, a major shift in the global corporate landscape has occurred. This shift is marked by an increased focus on environmental sustainability and the adoption of ecologically responsible practices (Akhtar et al., 2024). Businesses are becoming more interested in green innovation as a tool of environmental conservation due to mounting environmental concerns

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(Gürlek & Koseoglu, 2021). In this regard, the notion of "green" or environmentally sustainable innovation has become increasingly important as businesses look to address the issues brought by resource scarcity, climate change, and societal expectations (Akhtar et al., 2024). Accordingly, green innovation aids companies in expanding their market share and strengthening their edge over rivals (Sellitto et al., 2020). Additionally, companies are focusing on improving their environmental and green innovation performance due to the influence of global organizations, consumers, governmental bodies, and society (Akhtar et al., 2024). For the hospitality and tourism sector, green innovation aims to create customized, eco-friendly services, production methods, and organizational strategies to reduce environmental harm (Gürlek & Tuna, 2018). For this reason, hotel organizations need to integrate environmental management strategies with green innovation practices so as to reduce the damage to the environment (Begum et al., 2021).

Due to the fierce competition in the hospitality sector, guests can now quickly switch from service providers to another in pursuit of high-quality offerings. Consequently, a hospitality company can gain competitive advantage by differentiating its services from rivals (Chima, 2023). In this instance, hotels can differentiate its service from that of its competitors in a number of ways. For example, it may choose to differentiate its offerings based on price or quality. If a company chooses to differentiate its services based on quality, it will use a tagline that emphasizes quality; if it chooses to differentiate its services based on price, it will market itself as the most affordable supplier of a particular service category (Chima, 2023).

Over the past two decades, establishing sustainability has garnered significant attention in enterprises to ensure long-term performance for the entities and for employees (Kramar, 2014). In this context, sustainable performance has gained popularity as the United Nations established the objectives that the travel and tourism sector should achieve. Nonetheless, the hospitality sector has mostly ignored sustainable performance (Fatima & Elbanna, 2023).

In Egypt, the tourism and hospitality are expanding quickly, as this sector faces environmental issues and worries as a result of this expansion (Yusoff et al., 2020). Consequently, hotels are increasingly required to implement sustainable practices and eco-friendly tourism (Khawand et al., 2022). Thus, green star environmental sustainability was created as a solution to these problems (Yusoff et al., 2020).

This research adds to the body of literature by examining the relationship between green innovation and hotel sustainable performance by depending on the Resources Based View (RBV) approach, which states that if hotels are able to create valuable-unique, non-substitutable and non-transferable-resources and capabilities, then competitiveness is possible (Soewarno et al., 2019). Stucki (2019) asserted that firm may afford shifting to the green technologies paradigm if they are profitable, and it can achieve the expected return of sustainable performance. In this regard, this paper responds to the recommendation of Gazi et al. (2024) by conducting further studies to examine the relationship between green innovation and sustainable performance in developing country. In addition, this study investigates the relationship between green innovation and differentiation strategy. Companies which pursue a differentiation strategy always strives to offer something different to their customers (Andersén, 2021). According to the prior literature related to competitive strategy, differentiation strategies should take into account how an organization plans to use the resources acquired from the development of green products (Li & Li, 2008; Chen & Liu, 2018). Furthermore, the relationship between green

innovation and hotel sustainable performance (HSP) of green star hotels, which is influenced by the firm's differentiation strategy (McWilliams & Siegel, 2011).

This research integrates two frameworks—the natural-resource based view (NRBV) and the market-based view (MBV)—to answer the core question of the study, to what extent does green innovation impact the hotel sustainable performance? To find the answer to this issue, we develop a comprehensive analytical model that takes into account the direct impact of hotels' green innovation on hotel sustainable performance, as well as the indirect impact of the differentiation strategy on hotel sustainable performance. From literature review perspective, the effect of differentiation strategy on hotel sustainable performance has never been studied thoroughly. In this context, this research can add value to the literature related to green innovation and their practical application by addressing NRBV perspective. Furthermore, it examines the role of the differentiation strategy in facilitating the relationship between green innovation and hotel sustainable performance in Egypt.

Literature Review

Green Innovation (GI)

Nowadays, companies in the hospitality and tourist sector have concentrated on the green innovation (GI) idea to address environmental issues in order to develop revenue plans and establish their brands (Gürlek & Koseoglu, 2021). GI is characterized by innovations that seek to lessen hazards and negative impacts on the environment (Cocca & Ganz, 2015). Based on Natural-Resource Based View (NRBV), 'green' makes it possible for firms to deliberately ensure that the requisite resources and capabilities for the design of products and processes are developed (Xie et al., 2019; Tanveer et al., 2024). Thus, advanced and green resource complex integration is required to structurally apply GI (Wang, 2019).

According to Cheng et al. (2014), GI includes innovative green processes and green products that include technological advancements in pollution control, energy conservation, waste recycling and designing environment friendly products, as well as sustainable business tactics. GI comprises of both green product innovation (GPT) and green process innovation (GPI). Products, packaging, product refurbishment and recovery, and Eco-labeling innovation fall under the category of product innovation and are hence termed green products (Singh et al., 2020). An organization's capacity to change current production methodologies and engineer new ones to be more energy efficient and less polluting is what green processes stands for (Begum et al., 2022). Moreover, Abdou et al. (2022) stated that green process innovation is required at each stage of R&D, prototyping, and even mass production.

In this regard, Li et al. (2017) noted that green process innovation leads to green product innovation. Nanath and Pillai (2017) mentioned that external stakeholder focused on green product innovation as well as internal stakeholder focused green process innovation. For many reasons, green process innovation has been evaluated to be positively correlated with green product innovation (El-Kassar & Singh, 2019). First, green process innovation systematically improves all operational and management processes so it enables green product innovation and thus may lead to green products' design and manufacture. Second, through process innovation an enterprise is able to enhance the quality of its existing products, broaden the product mix or even create new products which in turn helps it expand its market share (Yang et al., 2015). As mentioned by Abdou et al. (2022), the first building block of GI is green process innovation as it represents the fundamental basis for green product innovation.

Differentiation strategy (DS)

According to Mbugua and Kinyua (2019), differentiation strategy emphasizes the distinctiveness of the company's product or service in order to provide something that stands out from the competition. In other words, the organization seeks to be unique on specific customer-valued characteristics certain criteria (Chiguvi et al., 2020). In industry contexts, differentiation strategy chooses a feature or combination of features that customers may perceive products and services valuable (Ifeoma et al., 2021).

A differentiation strategy is defined as providing customers with unique and significant products/services that set the company's product or service apart from rival offerings (Adimo, 2018). In addition, differentiation strategy is a competitive approach that targets a wide market and entails developing a product or service in a way that is thought to be special or unique (Abdou et al., 2022). Businesses that use the competitive approach conceptualizes differentiation in a variety of areas, including technology, customer service, benefits or features, product design, quality and specifications, and more. Organizations can attain a favorable return on investment by employing such a competitive approach (Abdou et al., 2022).

In accordance with Bokhari and Chowdhury (2014), the differentiation strategy is based on choosing a competitive niche within an industry sector or a business activity focused on a particular market segment and stepping up marketing efforts. Depending on technical superiority, differentiation could be maintained for a longer period of time (Nolega et al., 2015). In this regard, differentiation strategy aims to provide a product or service that differs from what competitors offer to match the wants and needs of the customer who prioritizes excellence and quality rather than price (Rasouli & Sepideh, 2018). Due to the diversity of customers' demands and preferences, there are many aspects of excellence that cannot be limited, such as high quality, low maintenance costs, ease of use and accessibility, variety of sales methods, various payment options, accurate delivery times, quick order fulfillment, and other distinctive features that set it apart from competitors (Razzoukia et al., 2024).

Hotel Sustainable Performance (HSP)

The idea of sustainability began as an environmental concept which sought to preserve resources. It has now been transformed to become an integral strategy for businesses (Przychodzen & Przychodzen, 2013; Herbohn et al., 2014). Organizations should be encouraged to adopt a proactive strategy to safeguard the environment against the consequences of their activities on the biophysical environment, which include waste production and excessive use of natural resources (Asadi et al., 2020).

According to Galdeano-Gomez et al. (2013), environmental sustainability refers to the modifications in industrial technologies in order to reduce the negative effects on the environment. Thus, resolving environmental issues is regarded as the main obstacle facing businesses in any community as unsustainable organizational practices lead to the depletion and degradation of natural resources (Hall et al., 2010).

The most basic definition of sustainability is "Triple Bottom Line" (TBL) which incorporates profit, people, and planet (Yu & Zhao, 2015). Elkington (1998) developed the Triple Bottom Line, which makes it easier to use sustainability in both research and decision-making. In order to achieve sustainability in business some additional considerations (economic, social, and environmental issues) that go beyond satisfying the stakeholders' current interests (Haffar & Searcy, 2018). According to TBL theory, organizations must maintain balance between their

economic, social, and environmental facets to attain sustainable development (Nilashi et al., 2019).

The Development of Hypotheses

The Relationship Between Green Innovation and Hotel Sustainable Performance

Currently, there is an overwhelming move to acknowledge the importance of green innovation in achieving sustainable performance, as customers, governments, and society are becoming more concerned about the depletion of natural resources and environmental damage (Asadi et al., 2020). In the hospitality and tourism context, a major portion of the environmental damage is caused by hotel.

The resource-based view (RBV) is employed to examine how green innovation affects sustainable hotel performance. According to the RBV theory, which was originally set by Wernerfelt in 1984, an organization is a special combination of resources and capabilities that work together to generate competences. According to RBV, firms can gain long-term competitive advantages by developing resources or competencies that are valuable, uncommon, and unique (Asadi et al., 2020).

Huang and Li (2017) identified a strong positive relationship between green product/process innovation and the sustainability level of the organization. Sharin et al. (2020) mentioned that the rapid development of product development with green technologies is one of the key drivers for maintaining a sustainable environment and economic growth. In this case, the initiatives that have been made in innovate green products lead to expanding and reaping the benefits of new markets for eco-friendly products. In addition, green firms have strengthened their image to enhance SP via green product innovations, which in turn increases competitiveness of the firm (Song and Yu, 2018). Furthermore, Asadi et al. (2020); Mubeen et al. (2023); Gazi et al. (2024) confirmed that green innovation has a positive effect on sustainable performance. In this context, Ullah et al. (2024) mentioned that organizational readiness for green innovation positively impacts sustainable performance. For this reason, this study hypothesizes:

H1: Green product innovation statistically impacts the hotels' sustainable performance

According to Latan et al. (2018), inefficiencies, unused products, and energy waste are frequently the causes of pollution. From an economic perspective, pollution is a waste, thus businesses can reduce their costs by implementing green process innovation (Abdou et al., 2022). Industries with poor process management textures tend to experience excess waste levels, inefficient use of resources, and there are always materials that are defective that get stockpiled (Tsai & Liao, 2017). Furthermore, Zhang et al. (2019) mentioned that the application of green processes practices also helps in enhancing the firm performance. Porter and Strategy (1980) suggests "Porter Hypothesis" which asserted that it is relatively easy to economize investments. Green process innovation helps businesses become more sustainable and competitive (Porter & Strategy, 1980).

On the basis of Xie et al. (2019), sustainable performance has a good relationship with clean technologies and end-of-pipe technologies, which are essential elements of green process innovation. Hence, the research suggests that:

H2: Green process innovation statistically impacts the hotels' sustainable performance

Green Innovation and Differentiation Strategy:

Based on market-based view (MBV), companies present their products in a different way in order to remain competitive in the market (Porter & Strategy, 1980). Despite the fact that green product innovation (GPT) may help businesses, a suitable approach could be necessary for firms to realize this potential benefit (Awan et al., 2021). Thus, can be achieved by adopting differentiation strategy (Andersén, 2021). Green design and packaging enhance product innovation as well as significantly helps in differentiation (Özgül & Zehir, 2023). Chen and Liu (2018) proposed that the development of green product innovation will be more valuable and profitable for businesses that apply differentiation strategy. Moreover, customers will pay extra for a high-quality product when the business successfully combines a green image with differentiation strategy (Porter & Linde, 1995; McWilliams & Siegel, 2011; Elsaed et al., 2022). Therefore, differentiators may gain more economic benefits from green product innovation and reap the financial rewards of such innovation (Chen & Liu, 2018). Furthermore, green product innovation acts as an indicator of differentiation (Somarathna, 2020). Accordingly, we put up the following hypothesis:

H3: Green Product Innovation statistically impacts the hotels' Differentiation Strategy

On the other side, green process innovation (GPI) can lessen the detrimental effects of pollution and providing businesses with a competitive edge (Chen & Liu, 2018). By employing improved and refined green technology, GPI helps in lowering costs and increasing efficiency (Adams et al., 2016). Furthermore, differentiation strategy may enhance the implications of green process innovation as differentiators which can promote their green production technologies (Schuhwerk & Lefkoff-Hagius,1995). In addition, Innovations in green processes serve as a means of differentiation (Somarathna, 2020). Thus, we propose the following hypothesis:

H4: Green Process Innovation statistically impacts the hotels' Differentiation Strategy

Differentiation Strategy and Hotel Sustainable Performance

McWilliams and Siegel (2011) and Abdou et al. (2022) agreed with Porter and Linde (1995) that sustainability improves organizations' competitive advantage while the environmental differentiation motivates the organizations to adopt sustainability. On the other hand, Li and Li (2008) and Chen and Liu (2018) have addressed a negative or even an insignificant correlation between sustainability and competitive advantage. These conflicting results make it difficult to determine how and in what manner firms might benefit from their efforts in sustainability. Organizations can benefit from sustainability, but it's also obvious that the proper organizational strategy is necessary to realize this potential benefit. Furthermore, organizations can benefit from sustainability, but it's also obvious that the implementation of proper organizational strategy is necessary to realize this potential benefit (Bhatia, 2021). Accordingly, we suggest the following hypothesis:

H5: Hotels' Differentiation Strategy statistically impacts the hotels' Sustainable Performance

The Mediation Role of Differentiation Strategy

Aligned with the market-based view of the firm, the firm's competition is a market affair where value can be created based on how well the product is differentiated (Lin et al., 2013). The existing literature on competitive strategy argues that differentiation strategy is the way how an organization will use the resources to apply green product innovation (Li and Li, 2008; Chen and Liu, 2018). The relationship between a company's strategic performance and its capacity for

green product innovation is influenced by its differentiation strategy (McWilliams and Siegel, 2011). Nonetheless, the differentiation strategy controls the activity of firms towards product design as opposed to establishing and sustaining cost and efficiency advantages. Therefore, the more value can be achieved from GPT, the more benefits obtained from the use of differentiation strategy in product design and packaging (McWilliams & Siegel, 2011; Abdou et al., 2022). Chen and Liu (2018) explain the moderating role of differentiation strategy in the relationship between GPT and SP. In this regard, the relationship between green product innovation and sustainable performance remains scare. Consequently, this research argues that:

H6: The relationship between green product innovation and hotels' sustainable performance is mediated by differentiation strategy.

Differentiation strategy helps in achieving many benefits for firms such as; customer loyalty, enables firms to enter new markets, broaden their product offerings, and gain more profits (Chen & Liu, 2018). Ma et al. (2017) suggested that the corporate green image weakens the relationship between GI and SP. In turn, GPI facilitates cost reduction and value enhancement through advanced green technology (Adams et al., 2016). Accordingly, we posit that:

H7: The relationship between green process innovation and hotels' sustainable performance is mediated by differentiation strategy.

Further research is necessary to completely understand the mechanisms underlying this relationship in the context of the hotel industry. The investigation's theoretical underpinnings are depicted in Figure 1.
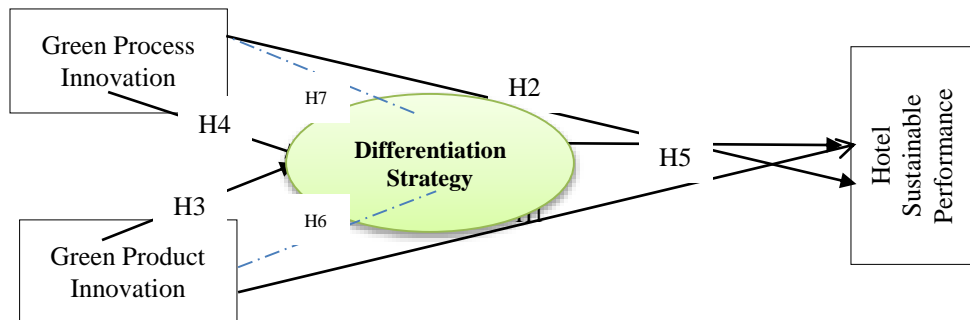

Figure 1: The Conceptual Model for Research

Materials and Methods

Measures and Instruments

The questionnaire consisted of two parts. The first part asked questions about the participants' age, gender, and educational level. The second part asked about green process innovation, green product innovation, differentiation strategy and hotel sustainable performance among employees of green star hotels. It was evaluated by using a five-point Likert scale, which ranging from strongly disagree (1) to strongly agree (5).

Green process innovation was measured by the scale of Chen et al. (2006). In this study, we make an adoption of the scale of green process innovation and green product innovation to be matched with the study's context. It includes six items; (1) the production process of the hotel

effectively reduces the waste. "A1," (2) the hotel's production process successfully lowers the emissions of dangerous materials. "A2," (3) the hotel's production method recycles waste, enabling it to be cleaned and repurposed. A3," (4) "The hotel's production process lowers water consumption." A4 (5):" The production process of the hotel reduces the consumption of energy." A5," (6)" The production process of the hotel reduces the use of raw materials." A6,".

In addition, green product innovation was measured by the scale of Chen et al. (2006). It involves six items; (1) "When developing or designing a product, the hotel chooses materials that produce the least amount of pollution." B1", (2) "The hotel selects the product materials consuming the least amount of energy." B2", (3) "When doing product development or design, the hotel chooses the materials that will use the fewest resources." B3, (4)" When doing product development or design, the hotel chooses the materials that will use the fewest resources." B4", (5) "The hotel would circumspectly deliberate whether the product is easy to recycle for product development or design." B5". (6)" The hotel would circumspectly deliberate whether the product is easy to reuse for product development or design." B6"

Differentiation Strategy was adopted from the scale of Li and Li (2008). It involves four items; (1) "In comparison with competing services, the hotel's services offer superior benefits to customers."C1", (2) "The hotel's services are unique, and nobody but the hotel can offer them." C2", (3) "The hotel works hard to establish a strong brand identity, and this is difficult for anyone to handle."C3, (4)" The hotel uses strong marketing and promotion campaigns to set itself apart from competitors." C4".

Finally, Hotel Sustainable Performance was adopted from the scale of Lisi (2015) and Spencer et al. (2013). It consists of 4 items; (1) "Complying with environmental strategies prevented and mitigated environmental crises." D1", (2) "In terms of profitability, the hotel outperforms our rivals" D2", (3) "Complying with environmental strategies Improve the hotel's reputation and generate societal benefits." D3, (4)" Complying with environmental strategies increases competitive advantage" D4".

The Study's Population and Sample

183 green star hotels (GSH) are located in Egypt. These green hotels awarded GSH certificate (GSH, 2024). The GSH is regarded as a novel capacity-building program that provides a nationwide green accreditation. This program is appropriately run by the Egyptian Ministry of Tourism and the Egyptian Hotel Association (EHA). By optimizing their performance and sustainability principles and cutting operational expenses without compromising quality standards, it gives Egyptian hotels the chance to gain recognition on a global scale as environmentally conscious businesses (El-Tahhan, 2024). The GSH are located in 17 destination country wide with 58000 rooms. GSH are located in the following locations: 49% South Sinai; 13% in Hurghada; 10% in El Gouna; 7% in Cairo, Ain Sokhna; 3% in Alexandria and Marsa Matrouh; 2% in Luxor; 7% in Safaga, and 9% in Marsa Alam (GSH, 2024).

This research aims to determine the effects of green innovation on hotel sustainable performance and the mediation role of differentiation strategy among employees at GSH. The population of the study involves the staff members of star green hotels in Egypt. The sample of the study consists of employees who are working at GSH in Sharm Elsheikh. This research applied at GSH in Sharm El-Sheikh for the following reasons: First, Sharm El-Sheikh is a popular tourist destination in Egypt that attracts tourists from all over the world (El-Tahhan, 2024). Second,

there is a steady and rapid growth in Sharm El Sheikh's tourism industry (El-Tahhan, 2024). Third, Sharm El-sheikh involves the majority of GSH in Egypt (49%) (GSH, 2024).

Convenience sampling is applied in this research for the following reasons: 1) It believed to be effective when the population is very large (Etikan et al., 2016); 2) It is widely used in the studies of tourism and hospitality and due to the challenging nature of this sector in the Egyptian context (Salem et al., 2021; Alhumud et al., 2025).

There are 782,900 workers in Egypt's food and accommodation service industries (CAPMAS, 2020). According to Saunders et al. (2011), if the population sample ranged between 10,000 and 100,000, thus the sample size is 384. Saunders et al. (2011) proposed that in order to collect the minimum sample size, it is crucial to distribute a larger number by focusing on the expected response (n_a= n x 100/re), as (n_a) means the actual sample size, (n) denotes the required minimum sample size, and (re) reflects the percentage of the expected response (=75%) based on prior studies (Dommeyer et al., 2002; Nulty, 2008). By utilizing the formula (384 x 100/75). Therefore, 512 represent the sample.

An online survey was created and distributed to hotel employees via an electronic Google form. A total of 550 questionnaires were gathered throughout the roughly four weeks data gathering period (January 2025). Only 500 of these surveys were examined. We identified and invited employees to participate in this study. A link to the questionnaire form was sent to the employees in GSH in Sharm El-Sheikh. A welcome message and a concise description of the study's goals were also provided. They were also reminded to return and resubmit their responses after finishing the questionnaire and participation was answering voluntary.

Data Analysis

The sample profile depicts in Table 1. The sample consists of 500 participants in total, 56.2% of them were male (N = 281) and the remaining 43.8% were female. In terms of age, more than half of the sample is 40 years or more (53.2%, N = 266). Regarding educational level, the majority of participants hold a bachelor's degree (77.2%, N =386).

Sample profile (N = 500)	Number	Percentage %
Gender		
Male	281	56.2%
Female	219	43.8%
Age (years)		
From 18–29	155	31%
From 30 to 39	79	15.8%
From 40–49	88	17.6%
More than 50	178	35.6%
Educational level		
High school	88	17.6%
Bachelor's degree	386	77.2%
Master degree	19	3.8%
PhD degree	7	1.4%

Table 1: Sample Profile

To check the common method bias (CMB), we conduct a principal axis factor analysis. We used Harman's single-factor test to detect CMB. According to Podsakoff et al. (2003), CMB may exist if one component explains more than 50% of the variance. In this research, there was no issue with CMB as one component demonstrates 41.03% of variance. In addition, multicollinearity test showed that the variance inflation factor (VIF) values for all variables were less than 5 showed in table 2 (Hair et al., 2019).

The Partial Least Squares Structural Equation Modelling (PLS-SEM) technique is a reliable multivariate analysis tool that is especially well-suited for exploratory and predictive research (Hair et al., 2011). The hypotheses were tested using "partial least square-structural equation modeling" (PLS-SEM) for the following reasons (Hair et al., 2019): 1) PLS-SEM offers a variety of tests to assess the validity and reliability of scales; 2) 1) It reduces the residual variances of the dependent variables; 3) It eliminates the multicollinearity and normal distribution issues.

According to Anderson and Gerbing's (1988) recommendation, SEM technique consists of two-stage; 1) the evaluation of the measurement model to verify the reliability and validity of the research's construct; 2) the evaluation of the structural model to test the proposed relationships verify and the overall model fit.

The Evaluation of the Measurement Model

In order to assess the measurement model, we should calculate the factor loadings, reliability, and validity. According to Hair et al. (2011), if the sample size is 350, so the sufficient factor loading should be 0.3. Hence, the sample size is 500, so all the constructs are ranged within the sufficient factor loading (0.571 to 0.905) (See Table 2). To assess internal consistency reliability, both Cronbach's alpha and composite reliability (CR) were calculated. All values of Cronbach's Alphas and CR were higher than 0.7 (see Table 2). Thus, these values have a strong internal consistency because they were above 0.70, which falls within the acceptable criterion of Hair et al. (2019). In addition, we assess the convergent validity of each construct by conducting average variance extracted (AVE). All the study constructs' fall within the acceptable convergent validity as it ranged between 0.539 and 0.737, as AVE should be equal or greater than 0.5 (Hair et al., 2019) (see Table 2).

Constructs	Items	Indicator Reliability	Collinearity Statistics	Internal Consistency			Convergent Validity
		Outer Loadings> 0.5	VIF	Cronbach Alpha > 0.7	Composite Reliability (rho_a) > 0.6	Composite Reliability (rho_c) > 0.6	AVE > 0.5
GPI	A1	0.605	4.076	0.828	0.834	0.875	0.539
	A2	0.754	4.560				
	A3	0.664	3.999				
	A4	0.665	2.527				
	A5	0.737	2.283				
	A6	0.571	2.403				
GPT	B1	0.823	3.400	0.928	0.929	0.944	0.737

	B2	0.841	2.501				
	B3	0.804	4.027				
	B4	0.743	4.771				
	B5	0.905	3.428				
	B6	0.826	2.148				
DS	C1	0.704	1.763	0.844	0.848	0.896	0.686
	C2	0.788	3.122				
	C3	0.786	2.740				
	C4	0.763	1.576				
HSP	D1	0.815	2.878	0.863	0.874	0.909	0.717
	D2	0.815	3.219				
	D3	0.839	3.047				
	D4	0.686	1.350				

Table 2: Validity and Reliability of the Study's Variables

Note: A1-A6 = Green process innovation; B1-B6 = Green product innovation; C1-C4 = Differentiation strategy; D1-D4 = Hotel sustainable performance.

According to discriminant validity, the AVE of each reflecting construct is higher than its correlations with other items (see Table 3). Every construct complied with the requirements established by Fornell and Larcker (1981). Tables 2 and 3 demonstrate that the measurement model has generally attained reliability, internal consistency, discriminant, and convergent validity.

	DS	GPT	GPI	HSP
DS	**0.828**			
GPT	0.649	**0.858**		
GPI	0.723	0.683	**0.734**	
HSP	0.795	0.569	0.688	**0.847**

Table 3: Discriminant validity-Fornell- Larcker criterion Matrix

Note: The bolded AVEs are the square roots on the diagonal. Simple bivariate correlations between the constructs are displayed in the other cells; Hotel Sustainable Performance (HSP); Green Product Innovation (GPT); Green Process Innovation (GPI); and Differentiation Strategy (DS).

The Heterotrait-Monotrait Ratio (HTMT) is another method could be used to ensure construct discriminant validity. Hair et al. (2019) and Henseler et al. (2015) showed that a threshold value of 0.90 or less is acceptable, meaning that discriminant validity is impacted if the HTMT score is higher. Table 4 shows that all of the HTMT values between the studies constructs are below 0.90, indicating that discriminant validity was successfully achieved.

	DS	GPT	GPI	HSP
DS				
GPT	0.739			

GPI	0.860	0.785		
HSP	0.790	0.622	0.804	

Table 4: Heterotrait-Monotrait Ratio (HTMT)-Matrix

Note: Hotel Sustainable Performance (HSP); Green Product Innovation (GPT); Green Process Innovation (GPI); and Differentiation Strategy (DS).

Notably, the HTMT values fall below 0.90.

Assessment of the Structural Model

Hair et al. (2011) mentioned that the evaluation of goodness-of-fit indices is assessed by beta (β), R^2, and predictive relevance (Q^2). The model's predictive performance was first assessed using the coefficient of determination, or R-square. This statistic, which has a range of 0 to 1, indicates how well the model explains the variation in the dependent variables. Greater prediction accuracy is correlated with higher R-square values (Hair et al., 2017). The Smart-PLS program was used in this investigation to compute the R-square values. To assess the predictive power of the model, the coefficient of determination (R^2) was calculated. 56.7% of differentiation strategy, and 80.6% of sustainable performance. According to Falk (1992), the model has good predictive power because all R^2 values are greater than 10%.

All of the study's indicators had PLS-RMSE values below LM-RMSE values, as indicated in Table 5, suggesting a significant level of predictive accuracy. Furthermore, the models' good predictive relevance is further supported by the presence of adverse variations in the PLS-LM column and positive Q^2 predict values. In addition, we measure the predictive relevance (Q^2). Thus, all Q^2 value are greater than zero, so the predictive relevance of the research model is supported (Hair et al., 2011).

	PLS-RMSE	LM-RMSE	PLS-LM	Q²_predict
C1	1.113	1.222	-0.109	0.748
C2	1.193	1.357	-0.164	0.684
C3	1.188	1.366	-0.178	0.719
C4	1.268	1.445	-0.177	0.704
D1	1.265	1.423	-0.158	0.804
D2	1.201	1.353	-0.152	0.573
D3	1.228	1.325	-0.097	0.626
D4	1.194	1.354	-0.16	0.554
Note: C1:C4 Differentiation Strategy (DS); D1:D2; Hotel Sustainable Performance (HSP).				

Table 5: Predictive Relevance

Table 6 provides a detailed overview of the structural models' direct path coefficients between the constructs. The analysis reveals that GPT has a significant positive influence on HSP ($\beta=0.566$, $p<0.01$), so H1 is confirmed. GPI positively impacts HSP ($\beta=0.179$, $p<0.01$). Thus, H2 is approved. GPT has a significant positive influence on DS ($\beta=0.524$, $p<0.01$), so H3 is supported. In addition, GPI has a significant positive influence on DS ($\beta=0.290$, $p<0.01$). Thus, H4 is accepted. Moreover, DS positively affects HSP ($\beta=0.854$, $p<0.01$). Hence, H5 is confirmed.

	Relationship	BETA	P-value	Result
H.1.	GPT ->HSP	0.566**	0.000	Significant
H.2.	GPI ->HSP	0.179**	0.000	Significant
H.3	GPT -> DS	0.524**	0.000	Significant
H.4	GPI ->DS	0.290**	0.000	Significant
H.5	DS-> HSP	0.854**	0.000	Significant
**p <0.01				

Table 6: Direct Effects

	Relationship	Direct	Indirect	VAF	Result
H.6.	GPT -> DS->HSP	0.566**	0.248**	30.5	Partial mediation
H.7.	GPI -> DS->HSP	0.179**	0.448**	71.4	Partial mediation
**p <0.01					

Table 7: Results of the Mediation Relationship

Table 7 highlights the specific indirect effects within the structural model, focusing on the mediation role of DS in the connections between the green innovation (GPT and GPI) and HSP. Table 7 illustrates how differentiation strategy partially mediated the relationship between green product innovation, green process innovation and hotel sustainable performance. Variance Accounted for (VAF) shows the extent to which indirect effect is connected to the total effect. According to Hair et al. (2017), the VAF ultimately calculates the mediation's strength and ranges from 0% to 100%. Values above 80% indicate full mediation, those between 20% and 80% address partial mediation, and those below 20% indicate no mediation effect.

The result confirms that DS is partially mediates the impact of GPT on HSP (β=0.248, p<0.01), with positive and statistically significant path coefficients and confidence intervals that exclude zero. The value of VAF is 30.5 (Between 20% and 80%), so differentiation strategy partially mediates the relationship between green product innovation and hotel sustainable performance. Thus, H6 is supported. In addition, the finding reveals that GPI has a significant indirect effect on HSP through DS (β= 0.448, p<0.01). The finding asserts that DS is partially mediates the impact of GPI on HSP. So, H7 is accepted. Hence, all the hypotheses are confirmed. The value of VAF is 71.4 (Between 20% and 80%), so differentiation strategy partially mediates the relationship between green process innovation and hotel sustainable performance.

Conclusion

This study examined the relationship between green innovation (green product innovation and green process innovation), differentiation strategy, and hotel sustainable performance. First, the study's findings addressed that green product innovation positively affects hotel sustainable performance, which is compatible with the results of Huang and Li (2017); Sharin et al. (2020). Second, this study mentioned that GPI has a positive impact on hotel sustainable performance, which is agreed with the findings of Xie et al. (2019). Furthermore, the current research addressed that green innovation has a positive effect on hotel sustainable performance, which is aligned with the results of Asadi et al. (2020); Mubeen et al. (2023); Gazi et al. (2024). Third,

this study concluded that green product innovation has a positive effect on differentiation strategy, which is agreed with the findings of Chen and Liu (2018); Somarathna (2020). Fourth, this research showed that green process innovation positively affects differentiation strategy, which is consented to Adams et al. (2016); Chen and Liu (2018); Somarathna (2020). Fifth, this study confirmed that differentiation strategy positively influences hotel sustainable performance, which is aligned with the findings of McWilliams and Siegel (2011); Bhatia (2021); Abdou et al. (2022). Sixth, distribution strategy partially mediates the relationship between green product innovation and hotel sustainable performance, which is agreed with the results of Li and Li (2008); Chen and Liu (2018). Finally, differentiation strategy partially mediates the relationship between green process innovation and hotel sustainable performance, which is partially agreed with Chen and Liu (2018) who explained the moderating role of differentiation strategy in the relationship between green process innovation and sustainable performance. As, differentiation strategy strength the relationship between green process innovation and hotel sustainable performance.

Theoretical and Practical Implications

Theoretical Implications

The current study has made a significant contribution to the existing literature review green innovation, green product innovation, green process innovation, differentiation strategy, and sustainable performance in green star hotels. First, this paper responds to the recommendation of Gazi et al. (2024) by conducting future studies to investigate the relationship green innovation and sustainable performance in developing country. This research is applied in Egypt as a developing country. Second, according to the authors knowledge, this is the first study that examine the effect of green product innovation on sustainable performance. As previous studies have been conducted in different contexts such as companies of information and communication technology (ICT) (Huang & Li, 2017); petrochemical company (Sharin et al., 2020); in different contexts (i.e., manufacturing industry; service industry; high-and new-technology industry, and IT industry (Song & Yu, 2018). Third, most of prior studies (Asadi et al., 2020; Shahzad et al., 2020; Mubeen et al., 2023; Gazi et al., 2024) examine GI as a unidimensional construct without investigating the effect green product innovation (GPT) and green process innovation (GPI). On the other hand, some of prior studies investigate green innovation through two dimensions namely; management innovation and green technological (Abbas & Sağsan, 2019; Wang et al., 2022). Nevertheless, this study responds to the recommendation of Huang and Li's (2017) and Ma et al.'s (2017) by addressing green innovation as multi-dimensional construct to generate sophisticated outcomes. This study addresses green innovation which involves (process innovation, and product innovation). Furthermore, this research responds to the suggestion of Asadi et al.'s (2020) as they mentioned the potential impact of green innovation on sustainable performance in the hotel sector has not received much attention in research. Fourth, this research responds to the suggestion of Somarathna's (2020) by carrying further studies to examine the effect of green process innovation on differentiation strategy in hotels context. Fifth, according to the author knowledge, the effect of differentiation strategy on sustainable performance has never been studied thoroughly. Finally, this research examines the mediation role of differentiation strategy in the relationship between green innovation and sustainable performance. On the other hand, Chen and Liu (2018) investigate the moderating role of green product innovation and sustainable performance in manufacturing companies. To sum up, this study contributes to the body of research related to green product innovation, green process innovation, differentiation strategy, and sustainable performance in the context of green hotel

sector. The study's conclusions are important because they can serve as a roadmap for further investigation. Moreover, they give researchers in the hospitality industry a thorough grasp of the major elements that both directly and indirectly affect the sustainable performance of employees who are working in green star hotels.

Practical Implications

This study offers several practical implications for hotel's managers. First, it helps hotel's manager to comprehend the importance of using green products and processes in green star hotels. Second, it helps them to use green technology in order to implement environmentally friendly practices. Third, this research assists hotel's managers to apply sustainable practices, which has a prominent role in combating pollution, conserving energy and recycling waste. This is consistent with what was mentioned by (Begum et al., 2022). Fourth, it helps them to understand how the application of green processes practices and green products also helps to enhance the hotel sustainable performance, which is partially consistent with Zhang et al. (2019). To sum up, according to the study results, green process innovation systematically improves all operational and administrative processes, thus enabling the innovation of green products and may lead to the design and manufacture of green products. Finally, through process innovation, hotel establishments can improve the quality of their existing products, expand their product mix or even create new products, which in turn helps them expand their market share.

Research Restrictions and Recommendations

The current study has some limitations. First, this study utilized a questionnaire that gathered cross-sectional data, which limiting any indications of long-term changes in the research variables. Longitudinal research can therefore be helpful in future studies to monitor the effects of green innovation over time on differentiation strategy, and sustainable performance. Second, this study only included a sample of Egyptian green star hotels due to time and budgetary constraints. Therefore, the results suggested that future studies could be applied on a larger sample size. Third, this study is applied on green star hotels in developing country like Egypt. Future studies could be conducted on developed country and compare the results with the findings of this research. Fourth, this study is applied on green star hotels. Future studies may be implemented in industrial companies, banks, and companies of information and communication technology. Lastly, future studies may examine the effect of corporate social responsibility, green knowledge integration capability, and green technology development capabilities as independent variables, and green entrepreneurial orientation as a mediator variable.

Author Contributions:

S.M.A, E.A.H, H.M.A, A.A.E conceptualization, resources, writing—editing and review, and visualization.

A.A.E, M.A.E Data collection, formal analysis, data curation, software, verification, and visualization.

Data Availability Statement:

Upon request, the corresponding author (Eahasnin@imamu.edu.sa) will provide the required data.

Conflicts of Interest: The authors have not disclosed any conflicts of interest.

References

Abbas, J., & Sağsan, M. (2019). Impact of knowledge management practices on green innovation and corporate sustainable development: A structural analysis. Journal of Cleaner Production, 229, 611–620. https://doi.org/10.1016/j.jclepro.2019.05.024

Abdou, A. H., Hassan, T. H., Salem, A. E., Elsaied, M. A., & Elsaed, A. A. (2022). Determinants and consequences of green investment in the Saudi Arabian hotel industry. Sustainability, 14(24), 16905. https://doi.org/10.3390/su142416905

Adams, R., Jeanrenaud, S., Bessant, J., Denyer, D., & Overy, P. (2016). Sustainability-oriented innovation: A systematic review: Sustainability-oriented innovation. International Journal of Management Reviews, 18(2), 180–205. https://doi.org/10.1111/ijmr.12068

Adimo A.A (2018). Relationship between Product Differentiation Strategies and Organizational Performance in Sameer Africa Kenya Limited. British Journal of Marketing Studies.6, (3)60-72

Akhtar, S., Li, C., Sohu, J. M., Rasool, Y., Hassan, M. I. U., & Bilal, M. (2024). Unlocking green innovation and environmental performance: the mediated moderation of green absorptive capacity and green innovation climate. Environmental Science and Pollution Research International, 31(3), 4547–4562. https://doi.org/10.1007/s11356-023-31403-w

Alhumud, A. A., Amer, S. M., Hasnin, E. A., & Alsahely, M. A. (2025). Enhancing place identity through food customization and customer delight: Evidence from healthy food restaurants. Qubahan Academic Journal, 5(1), 215–228. https://doi.org/10.48161/qaj.v5n1a1529

Andersén, J. (2021). A relational natural-resource-based view on product innovation: The influence of green product innovation and green suppliers on differentiation advantage in small manufacturing firms. Technovation, 104(102254), 102254. https://doi.org/10.1016/j.technovation.2021.102254

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. Psychological Bulletin, 103(3), 411–423. https://doi.org/10.1037/0033-2909.103.3.411

Asadi, S., OmSalameh Pourhashemi, S., Nilashi, M., Abdullah, R., Samad, S., Yadegaridehkordi, E., Aljojo, N., & Razali, N. S. (2020). Investigating influence of green innovation on sustainability performance: A case on Malaysian hotel industry. Journal of Cleaner Production, 258(120860), 120860. https://doi.org/10.1016/j.jclepro.2020.120860

Awan, U., Nauman, S., & Sroufe, R. (2021). Exploring the effect of buyer engagement on green product innovation: Empirical evidence from manufacturers. Business Strategy and the Environment, 30(1), 463–477. https://doi.org/10.1002/bse.2631

Begum, S., Ashfaq, M., Xia, E., & Awan, U. (2021). Does green transformational leadership lead to green innovation? The role of green thinking and creative process engagement. Business Strategy and the Environment, 31(1), 580-597.

Begum, S., Xia, E., Ali, F., Awan, U., & Ashfaq, M. (2022). Achieving green product and process innovation through green leadership and creative engagement in manufacturing. Journal of Manufacturing Technology Management, 33(4), 656–674. https://doi.org/10.1108/jmtm-01-2021-0003

Bhatia, M. S. (2021). Green process innovation and operational performance: The role of proactive environment strategy, technological capabilities, and organizational learning. Business Strategy and the Environment, 30(7), 2845–2857. https://doi.org/10.1002/bse.2775

Bokhari, R. P., & Chowdhury, S. (2014). Determinants of personnel differentiation for competitive advantage: From the perspective of customer satisfaction. IOSR Journal of Business and Management, 16(8), 22–29. https://doi.org/10.9790/487x-16822229

CAPMAS Database. (2020). Egypt in figures (online). Retrieved from https://www.

capmas.gov.eg/Pages/Publications.aspx?page_id=5104. (Accessed 4 October 2024).

Chen, J., & Liu, L. (2018). Profiting from green innovation: The moderating effect of competitive strategy. Sustainability, 11(1), 15. https://doi.org/10.3390/su11010015

Chen, Y.-S., Lai, S.-B., & Wen, C.-T. (2006). The influence of green innovation performance on corporate advantage in Taiwan. Journal of Business Ethics, 67(4), 331–339. https://doi.org/10.1007/s10551-006-9025-5

Cheng, C. C. J., Yang, C.-L., & Sheu, C. (2014). The link between eco-innovation and business performance: a Taiwanese industry context. Journal of Cleaner Production, 64, 81–90. https://doi.org/10.1016/j.jclepro.2013.09.050

Chiguvi, D., Tadu, R., Khumalo, S., & Mahambo, C. (2020). Personnel differentiation for competitive advantage in the Private Tertiary Education Institutions in Botswana. International Journal of Marketing Studies, 12(1), 23. https://doi.org/10.5539/ijms.v12n1p23

Chima, A. V. (2023). Service Differentiation and Customer Partonage in the Hospitality Industry in Nigeria. BW Academic Journal, 11-11.

Cocca, S., & Ganz, W. (2015). Requirements for developing green services. Service Industries Journal, 35(4), 179–196. https://doi.org/10.1080/02642069.2014.990002

Dommeyer, C. J., Baum, P., Chapman, K. S., & Hanna, R. W. (2002). Attitudes of business faculty towards two methods of collecting teaching evaluations: Paper vs. Online. Assessment & Evaluation in Higher Education, 27(5), 455-462. https://doi.org/10.1080/0260293022000009320

El-Kassar, A.-N., & Singh, S. K. (2019). Green innovation and organizational performance: The influence of big data and the moderating role of management commitment and HR practices. Technological Forecasting and Social Change, 144, 483–498. https://doi.org/10.1016/j.techfore.2017.12.016

Elkington, J. (1998). Partnerships from cannibals with forks: The triple bottom line of 21st-century business. Environmental Quality Management, 8(1), 37–51.

Elsaed A. A, Zaki M, Emam A. (2022). The role of green packaging in increasing customers' trust: Applied to cloud kitchens in Egypt. Journal of the Faculty of Tourism and Hotels-University of Sadat City, 6, (2/1), 111-123

El-Tahhan, E. A. K. S. (2024). Environmental awareness of employees as a mediating variable in the relationship between the marketing orientation of green star hotels and sustainable tourism in Egypt. WSEAS Transactions on Business and Economics, 21, 248-265.

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. American journal of theoretical and applied statistics, 5(1), 1-4.

Falk, R. F. (1992). A Primer for Soft Modeling. Ohio University of Akron Press.

Fatima, T., & Elbanna, S. (2023). Advancing sustainable performance management in the hospitality industry: A novel framework based on a health-inclusive balanced scorecard. Tourism Management Perspectives, 48(101141), 101141. https://doi.org/10.1016/j.tmp.2023.101141

Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. JMR, Journal of Marketing Research, 18(3), 382. https://doi.org/10.2307/3150980

Galdeano-Gómez, E., Aznar-Sánchez, J. A., & Pérez-Mesa, J. C. (2013). Sustainability dimensions related to agricultural-based development: the experience of 50 years of intensive farming in Almería (Spain). International Journal of Agricultural Sustainability, 11(2), 125–143. https://doi.org/10.1080/14735903.2012.704306

Gazi, M. A. I., Rahman, M. K. H., Masud, A. A., Amin, M. B., Chaity, N. S., Senathirajah, A. R. B. S., & Abdullah, M. (2024). AI capability and sustainable performance: Unveiling the mediating effects of organizational creativity and green innovation with knowledge sharing culture as a moderator.

Sustainability, 16(17), 7466. https://doi.org/10.3390/su16177466

GSH in numbers. (2024). Greenstarhotel.org. Retrieved November 18, 2024, from https://www.greenstarhotel.org/gsh-in-numbers/

Gürlek, M., & Koseoglu, M. A. (2021). Green innovation research in the field of hospitality and tourism: the construct, antecedents, consequences, and future outlook. Service Industries Journal, 41(11–12), 734–766. https://doi.org/10.1080/02642069.2021.1929930

Gürlek, M., & Tuna, M. (2018). Reinforcing competitive advantage through green organizational culture and green innovation. Service Industries Journal, 38(7–8), 467–491. https://doi.org/10.1080/02642069.2017.1402889

Haffar, M., & Searcy, C. (2018). Target-setting for ecological resilience: Are companies setting environmental sustainability targets in line with planetary thresholds? Business Strategy and the Environment, 27(7), 1079–1092. https://doi.org/10.1002/bse.2053

Hair, J. F., Jr, Matthews, L. M., Matthews, R. L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: updated guidelines on which method to use. International Journal of Multivariate Data Analysis, 1(2), 107. https://doi.org/10.1504/ijmda.2017.10008574

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. The Journal of Marketing Theory and Practice, 19(2), 139–152. https://doi.org/10.2753/mtp1069-6679190202

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. European Business Review, 31(1), 2–24. https://doi.org/10.1108/ebr-11-2018-0203

Hall, J. K., Daneke, G. A., & Lenox, M. J. (2010). Sustainable development and entrepreneurship: Past contributions and future directions. Journal of Business Venturing, 25(5), 439–448. https://doi.org/10.1016/j.jbusvent.2010.01.002

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Herbohn, K., Walker, J., & Loo, H. Y. M. (2014). Corporate social responsibility: The link between sustainability disclosure and sustainability performance: Sustainability disclosure and performance. Abacus, 50(4), 422–459. https://doi.org/10.1111/abac.12036

Huang, J.-W., & Li, Y.-H. (2017). Green innovation and performance: The view of organizational capability and social reciprocity. Journal of Business Ethics, 145(2), 309–324. https://doi.org/10.1007/s10551-015-2903-y

Ifeoma, A. R., Vincent, O., Purity, N. O., & Akaegbobi, G. (2021). Differentiation Strategy and Organizational Growth of Manufacturing Firm in Ebonyi State, Nigeria. European Journal of Social Sciences, 61, 3, 175-181.

Khawand, S., Ghasemi, M., & Sahranavard, S. A. (2022). Employee involvement and socialization as an example of sustainable marketing strategy and organization's citizenship behavior: Empirical evidence from Beirut hotel sector. Sustainability, 14(14), 8805. https://doi.org/10.3390/su14148805

Kramar, R. (2014). Beyond strategic human resource management: is sustainable human resource management the next approach? The International Journal of Human Resource Management, 25(8), 1069–1089. https://doi.org/10.1080/09585192.2013.816863

Latan, H., Chiappetta Jabbour, C. J., Lopes de Sousa Jabbour, A. B., Wamba, S. F., & Shahbaz, M. (2018). Effects of environmental strategy, environmental uncertainty and top management's commitment on corporate environmental performance: The role of environmental management accounting. Journal of Cleaner Production, 180, 297–306. https://doi.org/10.1016/j.jclepro.2018.01.106

Li, C. B., & Li, J. J. (2008). Achieving superior financial performance in China: Differentiation, cost leadership, or both? Journal of International Marketing, 16(3), 1–22.

https://doi.org/10.1509/jimk.16.3.1

Li, D., Zheng, M., Cao, C., Chen, X., Ren, S., & Huang, M. (2017). The impact of legitimacy pressure and corporate profitability on green innovation: Evidence from China top 100. Journal of Cleaner Production, 141, 41–49. https://doi.org/10.1016/j.jclepro.2016.08.123

Lin, R.-J., Tan, K.-H., & Geng, Y. (2013). Market Demand, Green Product Innovation, and Firm Performance: Evidence from Vietnam Motor Cycle Industry. Journal of Cleaner Production, 40, 101–107.

Lisi, I. E. (2015). Translating environmental motivations into performance: The role of environmental performance measurement systems. Management Accounting Research, 29, 27–44. https://doi.org/10.1016/j.mar.2015.06.001

Ma, Y., Hou, G., & Xin, B. (2017). Green process innovation and innovation benefit: The mediating effect of firm image. Sustainability, 9(10), 1778. https://doi.org/10.3390/su9101778

Mbugua, J. W., & Kinyua, G. M. (2019). Personnel differentiation and organization performance: An empirical analysis of deposit taking micro-finance institutions in Nairobi City County, Kenya. International Academic Journal of Human Resource and Business Administration, 3(7), 485-495.

McWilliams, A., & Siegel, D.S. (2011). Creating and Capturing Value: Strategic Corporate Social Responsibility, Resource-Based Theory, and Sustainable Competitive Advantage. Journal of Management, 37, 1480–1495.

Mubeen, A., Nisar, Q. A., Patwary, A. K., Rehman, S., & Ahmad, W. (2023). Greening your business: nexus of green dynamic capabilities, green innovation and sustainable performance. Environment Development and Sustainability, 26(9), 22747–22773. https://doi.org/10.1007/s10668-023-03574-6

Nanath, K., & Pillai, R. R. (2017). The influence of green IS practices on competitive advantage: Mediation role of green innovation performance. Information Systems Management, 34(1), 3–19. https://doi.org/10.1080/10580530.2017.1254436

Nilashi, M., Rupani, P. F., Rupani, M. M., Kamyab, H., Shao, W., Ahmadi, H., Rashid, T. A., & Aljojo, N. (2019). Measuring sustainability through ecological sustainability and human sustainability: A machine learning approach. Journal of Cleaner Production, 240(118162), 118162. https://doi.org/10.1016/j.jclepro.2019.118162

Nolega, S., Oloko, M., & Oteki, B. (2015). Effects of Product Differentiation Strategies on Firm Product Performance: A Case of Kenya Seed Company (KSC), Kitale. International Journal of Novel Research in Marketing Management and Economics, 2(3), 100-110

Nulty, D. D. (2008). The adequacy of response rates to online and paper surveys: What can be done? Assessment & Evaluation in Higher Education, 33(3), 301-314. https://doi.org/10.1080/02602930701293231

Özgül, B., & Zehir, C. (2023). How managers' green transformational leadership affects a firm's environmental strategy, green innovation, and performance: the moderating impact of differentiation strategy. Sustainability, 15(4), 3597.

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. The Journal of Applied Psychology, 88(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879

Porter, M. E., & Strategy, C. (1980). The Free Press. New York.

Porter, M. E., & Linde, C. V. D. (1995). Toward a new conception of the environment-competitiveness relationship. Journal of economic perspectives, 9(4), 97-118.

Przychodzen, J., & Przychodzen, W. (2013). Corporate sustainability and shareholder wealth. Journal of Environmental Planning and Management, 56(4), 474-493.

Rasouli, G. M. & Sepideh, S.(2018). The impact of differentiation strategy on the womenclothing

performance. Journal of Economics and Business, 1(4), 381-400. https://doi.org/10.31014/aior.1992.01.04.33

Razzouki, M., Azdod, M., Ait Lhassan, I., Bouayad, M., & Babounia, A. (2024). The effect of differentiation strategy on the organisational performance of companies in the agri-food industry: The mediating role of interactive use of management control system. Multidisciplinary Science Journal, 6(10), 2024199-2024199.

Riva, F., Gani, M. O., & Osman Gani, M. (2020). Effect of customer and competitor pressure on environmental performance of upscale hotels in Bangladesh. Jahangirnagar University Journal of Business Research (JUJBR), 21, 193-212.

Salem, I. E., Elbaz, A. M., Elkhwesky, Z., & Ghazi, K. M. (2021). The COVID-19 pandemic: The mitigating role of government and hotel support of hotel employees in Egypt. Tourism Management, 85(104305), 104305. https://doi.org/10.1016/j.tourman.2021.104305

Saunders, M. N., Saunders, M., Lewis, P. & Thornhill, A. (2011). Research Methods for Business Students, 5th ed. Pearson Education India.

Schuhwerk, M. E., & Lefkoff-Hagius, R. (1995). Green or non-green? Does type of appeal matter when advertising a green product? Journal of Advertising, 24(2), 45–54. https://doi.org/10.1080/00913367.1995.10673475

Sellitto, M. A., Camfield, C. G., & Buzuku, S. (2020). Green innovation and competitive advantages in a furniture industrial cluster: A survey and structural model. Sustainable Production and Consumption, 23, 94-104.

Shahzad, M., Qu, Y., Zafar, A. U., Rehman, S. U., & Islam, T. (2020). Exploring the influence of knowledge management process on corporate sustainable performance through green innovation. Journal of knowledge management, 24(9), 2079-2106.

Sharin, F. H., Hanafi, M. I. M., & Ahmad, W. A. A. W. (2020). Proactive Environmental Strategy and Environmental Performance: The Role of Green Transformational Leadership. Solid State Technology, 63(4), 5011-5023.

Singh, S. K., Giudice, M. D., Chierici, R., & Graziano, D. (2020). Green innovation and environmental performance: The role of green transformational leadership and green human resource management. Technological Forecasting and Social Change, 150(119762), 119762. https://doi.org/10.1016/j.techfore.2019.119762

Spencer, Y., Adams, S., & Yapa, C. (2013). The mediating effects of the adoption of an environmental information system on top management's commitment and environmental performance. Sustainability Accounting. Management and Policy Journal, 4(1), 75–102.

Soewarno, N., Tjahjadi, B., & Fithrianti, F. (2019). Green innovation strategy and green innovation: The roles of green organizational identity and environmental organizational legitimacy. Management decision, 57(11), 3061-3078.

Somarathna, T. W. D. S. P. (2020). Green Innovations As a Differentiation Strategy to Drive Sustainable Competitive Advantage. In 2020 International Conference on Business Innovation (ICOBI), Colombo, Sri Lanka.

Song, W., & Yu, H. (2018). Green innovation strategy and green innovation: The roles of green creativity and green organizational identity. Corporate Social Responsibility and Environmental Management, 25(2), 135-150.

Stucki, T. (2019). Which firms benefit from investments in green energy technologies?–The effect of energy costs. Research Policy, 48(3), 546-555.

Sun, J., & Nasrullah, A. (2024). Green transition in the hospitality industry: The influence of market forces and customer dynamics on sustainable performance in the digital era. Heliyon, 10(8), e29563.

https://doi.org/10.1016/j.heliyon.2024.e29563

Tanveer, M., Ud Din, M., Khan, M. F., Almurad, H. M., & Hasnin, E. A. H. (2024). Shaping consumer choices: The power of green brand knowledge, trust, and social responsibility. Journal of Infrastructure Policy and Development, 8(8), 5380.

Tsai, K.-H., & Liao, Y.-C. (2017). Sustainability strategy and Eco-innovation: A moderation model: Sustainability strategy and Eco-innovation: A moderation model. Business Strategy and the Environment, 26(4), 426–437. https://doi.org/10.1002/bse.1926

Ullah, S., Ahmad, T., Kukreti, M., Sami, A., & Shaukat, M. R. (2024). How organizational readiness for green innovation, green innovation performance and knowledge integration affects sustainability performance of exporting firms. Journal of Asia Business Studies, 18(2), 519–537. https://doi.org/10.1108/jabs-02-2023-0056

Wang, C. H. (2019). How organizational green culture influences green performance and competitive advantage: The mediating role of green innovation. Journal of Manufacturing Technology Management, 30(4), 666-683.

Wang, S., Abbas, J., Sial, M. S., Álvarez-Otero, S., & Cioca, L. I. (2022). Achieving green innovation and sustainable development goals through green knowledge management: Moderating role of organizational green culture. Journal of innovation & knowledge, 7(4), 100272.

Wernerfelt, B. (1984). A resource-based view of the firm. Strategic management journal, 5(2), 171-180.

Xie, X., Huo, J., & Zou, H. (2019). Green process innovation, green product innovation, and corporate financial performance: A content analysis method. Journal of business research, 101, 697-706.

Yang, X., Sun, S. L., & Yang, H. (2015). Market-based reforms, synchronization and product innovation. Industrial Marketing Management, 50, 30-39.

Yu, M., & Zhao, R. (2015). Sustainability and firm valuation: an international investigation. International journal of accounting and information management, 23(3), 289-307.

Yusoff, Y. M., Nejati, M., Kee, D. M. H., & Amran, A. (2020). Linking green human resource management practices to environmental performance in hotel industry. Global Business Review, 21(3), 663–680. https://doi.org/10.1177/0972150918779294

Zhang, D., Rong, Z., & Ji, Q. (2019). Green innovation and firm performance: Evidence from listed companies in China. Resources, Conservation, and Recycling, 144, 48–55. https://doi.org/10.1016/j.resconrec.2019.01.023.