

6-28-2023

Green entrepreneurship orientation, green innovation and hotel performance: The moderating role of managerial environmental concern

Ayatollah Momayez

Nasrin Rasouli

Mohammad Alimohammadirokni

S. M. Rasoolimanesh
Edith Cowan University

Follow this and additional works at: <https://ro.ecu.edu.au/ecuworks2022-2026>



Part of the [Business Law, Public Responsibility, and Ethics Commons](#)

[10.1080/19368623.2023.2225495](https://doi.org/10.1080/19368623.2023.2225495)

This is an Accepted Manuscript of an article published by Taylor & Francis in JOURNAL OF HOSPITALITY MARKETING & MANAGEMENT on 28/06/2023, available online: <http://www.tandfonline.com/10.1080/19368623.2023.2225495>.

Momayez, A., Rasouli, N., Alimohammadirokni, M., & Rasoolimanesh, S. M. (2023). Green entrepreneurship orientation, green innovation and hotel performance: The moderating role of managerial environmental concern. *Journal of Hospitality Marketing & Management*, 32(8), 981-1004. <https://doi.org/10.1080/19368623.2023.2225495>

This Journal Article is posted at Research Online.
<https://ro.ecu.edu.au/ecuworks2022-2026/2694>

Momayez et al. (2023)

Journal of Hospitality Management & Marketing

Green Entrepreneurship Orientation, green innovation and Hotel Performance: the moderating role of managerial environmental concern

Ayatollah Momayez¹, Nasrin Rasouli², Mohammad Alimohammadirokni³,
S. Mostafa Rasoolimanesh^{4,5}

¹ Faculty Member, Faculty of Entrepreneurship, University of Tehran, Tehran, Iran

Email: [REDACTED] ORCID: <https://orcid.org/0000-0001-6154-0519>

² Department of Economics and Management, Urmia University, West Azerbaijan, Iran

Correspondence Email: [REDACTED] ORCID: <https://orcid.org/0000-0001-6890-2551>

³ Department of Hospitality and Tourism management, Texas Tech University, Lubbock, TX, USA.

Email: [REDACTED] ORCID: <https://orcid.org/0000-0002-8851-748X>

⁴ Centre for Research and Innovation in Tourism (CRiT) & School of Hospitality, Tourism and Events Taylor's University, Subang Jaya, Malaysia

⁵ School of Business and Law, Edith Cowan University, Perth, Australia.

[REDACTED] ORCID: <https://orcid.org/0000-0001-7138-0280>

Correspondence details: Nasrin Rasouli

² Department of Economics and Management, Urmia University, West Azerbaijan, Iran

Correspondence Email: [REDACTED] ORCID: <https://orcid.org/0000-0001-6890-2551>

Word count: 10002

Keywords: Green Entrepreneurship Orientation, Managers' Environmental Concern,
Green Innovation, Performance

Abstract

This study investigates whether hotels' environmental and organizational performance is improved through green entrepreneurship, innovation, and managerial environmental concern. Through an online survey questionnaire, 271 responses were collected from hotel employees. The collected data were analyzed using PLS-SEM. The results suggest that green entrepreneurship orientation (GEO) has a direct and significant impact on environmental performance (EP) and organizational performance (OP). In addition, green innovation (GI) mediated the relationship between GEO, EP, and OP. Furthermore, when green innovation is used, managerial environmental concern (MEC) leads to higher environmental performance. However, its impact on GI and OP relationship was not significant. The present study offers important implications for hotels and service industries as it demonstrates the significance and role of green entrepreneurship, green innovation, and managerial environmental concern in improving performance in the hotel industry.

Keywords: Green Entrepreneurship Orientation, Managers' Environmental Concern, Green Innovation, Performance

Introduction

In many countries' trade laws, companies are advised to pursue environmental management initiatives in green processes and the development of products (Singh et al., 2020; Yu W. et al., 2017). The hotel and hospitality industries are not an exception to this (Pham et al., 2020) because the environmental effects of the service sector are better known in these industries (Wang et al., 2020). The hotel industry must prioritize green business (Kim et al., 2017) because this is an efficient way to reduce expenses, meet consumers' needs, improve performance, and increase market share (Rhou and Singal, 2020; Wang J., 2022).

The hotel industry constantly faces various challenges (Akbari et al., 2018). Over the past two decades, this industry has experienced remarkable growth, and now it provides customers with various facilities, such as accommodation, food, banquet, etc. (Yu J. et al., 2021). The expansion of this industry creates many benefits but, at the same time, causes several problems to the environment (Bagheri et al., 2020), including the loss of natural resources, climate change, the discharge of various pollutants into water and air, noise pollution, and the extinction of species (Munawar et al., 2022). Such an image created for this industry will lead to negative consequences for hotels due to the great value placed on sustainability and eco-friendly practices in the tourism and hospitality industries, as well as the growing consumer demand for environmentally friendly products and services (Trang et al., 2019; Yu J. et al., 2021). Prior research has proven that corporate policies, attitudes, and environmentally friendly practices significantly influence the development of positive consumer behaviors (Hwang and Choi, 2017; Yu J. et al., 2021). Green hotels with green certificates reduce environmental damage and the use of wasteful resources, which improves the hotels' performance, lowers their operating costs, and enhances their corporate image (Babaei and Fani, 2022). As a result, the importance of hotels' eco-friendly initiatives, programs, and practices is increasing as consumer awareness of environmental issues and interest in the environment increase (Yu J. et al., 2021).

Hotels must be able to pivot and concentrate on strategic reconfiguration to successfully achieve environmental performance (EP) in the face of rising competition and evolving environmental factors (Yusoff et al., 2020; Umrani et al., 2020). On the other hand, in developing economies, using competencies that lead to a competitive advantage increases organizational performance (OP) (Majali et al., 2022).

Organizational performance is the result or perceived success of a company in attaining objectives associated with growth in sales, profit, and market share (Huang and Li, 2017).

According to the resource-based view (RBV) theory, we propose that hotels adopt a green entrepreneurship orientation (GEO) and incorporate green innovation (GI) (as capabilities that create a competitive advantage) into their work process since green entrepreneurship orientation and green innovation lead to the growth of companies and improve their environmental performance and organizational performance (Asadi et al., 2020; Gast et al., 2017; Jiang et al., 2018; Majali et al., 2022; Przychodzen et al., 2016; Schaefer et al., 2015). Previous studies have pointed out that green entrepreneurship and green innovation are two independent but related concepts (Bachinger and Rau, 2016; Makhoulfi et al., 2022; Wang C. et al., 2022). Green innovation refers to advancements in product design and production methods that conserve energy, minimize pollution and waste, and lessen the environmental effect of a corporation (Tang et al., 2018). Most businesses widely use green innovation as a viable strategy for achieving long-term competitive advantages (Borghesi et al., 2015; Guo et al., 2020). In fact, green innovation will increase companies' profits and reduce environmental damage (Hsiao and Chuang, 2016). Therefore, to simultaneously promote economic profit and pursue environmental trends, hotels are encouraged to deploy green innovation to improve environmental management (Chen et al., 2006). On the other hand, green entrepreneurship orientation is critical in promoting green innovation and minimizing adverse environmental consequences (Makhoulfi et al., 2022; Shafique et al., 2021). Green entrepreneurship orientation refers to the willingness to engage in green initiatives that will benefit the environment and the economy (Jiang et al., 2018; Makhoulfi et al., 2022). In green entrepreneurship, the objective is not simply to make a profit. Non-economic indicators, such as animal health and the environment, are also emphasized in green entrepreneurship

(Bachinger and Rau, 2016). In general, it can be stated that both of these factors can play a critical role in achieving positive performance in organizations.

Also, because of the negative effects of economic activities on the environment and, as a result, on the economy in terms of environmental dimensions and inefficiency, policymakers have been forced to emphasize the urgent need to move towards sustainable environmental development by encouraging sustainable measures and cleaner technologies (Ullah and Qaiser Danish, 2020). Corporate executives have also raised these environmental concerns (Makhloufi et al., 2022). Previous studies have stated that managerial environmental attitudes can lead to positive activities, reducing environmental pollution (Ashford, 1993; Song et al., 2020). Managerial environmental concern is a dynamic ability that enhances environmental initiatives, responding to the external natural environment (Makhloufi et al., 2022). According to managerial environmental concern, attention to the environment positively affects adopting environmental innovation strategies (Saudi et al., 2019) and acts as a driver to achieve green innovation, which, in turn, increases a firm's performance (Tang et al., 2018). However, the effects of these factors on performance in hotels are still ambiguous. To the best of the authors' knowledge, no study has ever delved into the association between green entrepreneurial orientation (GEO), green innovation (GI), and managers' environmental concern (MEC) in the hospitality industry using a model similar to the one used in this study.

In addition, new data indicate that Iran is one of the world's most polluted nations (Bagheri et al., 2020). According to Iran's Department of Environment and other non-profit organizations, Tehran tops the list of Iranian cities experiencing ecosystem-related issues (Rahnama and Rajabpour, 2017). The development of environmentally friendly

hotels has become an increasingly important issue in Iran (Bagheri et al., 2020). Designing and constructing green hotels in Iran is essential due to the significance of complying with environmental practices, minimizing the use of non-renewable energy, and maintaining a sustainable environment (Rahnama and Rajabpour, 2017). Therefore, conducting research that may demonstrate hotels' perspectives on the effect of green factors such as green innovation and green entrepreneurship on hotel performance can be helpful in a country like Iran that faces environmental issues. Therefore, the following are the study's objectives:

- Understanding the direct effects of GEO on GI, EP, and OP;
- Evaluating the direct effects of GI on EP and OP;
- Identifying indirect effects through GI between GEO and EP, and OP;
- Understanding the indirect effects through managers' environmental concerns (MEC) between GI and EP, and OP.

This study contributes to the body of knowledge about how environmentally friendly practices can positively impact organizational outcomes in the hospitality industry. The study gives hotel managers insights into the factors that drive environmentally sustainable practices in organizations, highlighting the importance of prioritizing environmental concerns in decision-making. By adopting a Green Entrepreneurship Orientation and promoting Green Innovation, hotel managers can achieve better environmental and organizational outcomes while promoting environmentally sustainable employee attitudes and behaviors.

Literature Review and Research Hypotheses

Theoretical Framework

The tenets of the resource-based view (RBV) theory, introduced by (Wernerfelt, 1984), are adopted in this study. This theory, which has frequently been applied in research on environmental management (Hamdoun, 2020), proposes that valuable, rare, non-substitutable, and inimitable resources directly impact an organization's success (Brulhart et al., 2017). According to the RBV theory, an organization is composed of various resources and competencies that, when combined in a certain way, provide outstanding results (Hitt et al., 2011) and lead to higher performance (Khanra et al., 2022). It is suggested that the company's distinctive and unique assets, resources, and competencies provide it with a competitive advantage (Jiang et al., 2018; Xie et al., 2019). It is also proposed that the connection between the environment and social welfare affects these resources and abilities and leads to better performance in businesses that seek sustained competitive advantage (Khanra et al., 2022). These resources and unique skills are represented in this study by managerial environmental concern, green innovation, and a focus on green entrepreneurship orientation.

RBV posits that focusing on green entrepreneurship produces green innovation, which grants businesses a competitive advantage and influences various kinds of performance (Muangmee et al., 2021). This theory also states that a differentiation strategy based on environmental elements might enhance organizational performance (Galdeano-Gómez, 2008). This differentiation strategy is represented in this study as managerial environmental concerns.

Green Entrepreneurship Orientation and Performance

The rapid depletion of natural resources due to increasing customer demands has created unexpected environmental and socio-economic concerns (Yunus and Michalisin, 2016). Strategy and competitive advantage will likely be based on the qualities that enable eco-friendly economic activity (Elshaer et al., 2023). In this regard, sustainable performance has become the main objective of commercial and academic research (Elshaer et al., 2023). Sustainability is also vital for the competitiveness of the hotel industry (Pereira-Moliner et al., 2021). Based on previous studies, the two fundamental indicators for sustainable performance include organizational performance and environmental performance (Gürlek and Koseoglu, 2021; Huang and Li, 2017; Jiang et al., 2018; Saudi et al., 2019). Organizational performance is evaluated in terms of financial indicators, measured by market share, profitability, and return on investment (Huang and Li, 2017). Environmental performance is measured by the business's capacity to save energy, reduce waste, and reduce the use of hazardous inputs are related (Kanan et al., 2023).

Green entrepreneurship orientation may improve environmental performance by providing environmentally friendly products and services, reducing hazardous environmental emissions, and committing to consumer safety and health (Makhloufi et al., 2022). In addition to its benefits to the ecosystem, green entrepreneurship orientation offers economic benefits through decreased resource costs and energy savings and results in a willingness to invest in an environment of high uncertainty (Chen Y.-S. and Chang C.-H., 2013). Overall, green entrepreneurship orientation is effective in improving both organizational performance and environmental performance.

Some authors have acknowledged that green management leads to higher environmental performance and organizational performance, mainly when significant

economic improvement occurs in organizational performance (Wagner, 2013). For example, Jiang et al. (2018) showed that green entrepreneurship orientation positively affected environmental and financial performance. Furthermore, a literature review by Hussain et al. (2015) revealed that managers and owners of enterprises should embrace green entrepreneurship orientation to gain a competitive edge and sustainable performance. The following hypotheses were developed based on the above discussion:

H1: GEO has a significant effect on OP.

H2: GEO has a significant effect on EP.

Green Entrepreneurship Orientation and Green Innovation

Green innovation refers to innovations that minimize environmental damages and risks (Cocca and Ganz, 2015; Gürlek and Koseoglu, 2021). To eliminate environmental risks, pollution, and other negative effects, green innovation offers firms several practices so that they can develop or use innovative products, processes, management techniques, or business practices (Gürlek and Koseoglu, 2021). The goal of green innovation in the hotel industry is to develop environmentally friendly services (Wang et al., 2020).

Entrepreneurial orientation helps firms achieve strategic positions by providing techniques, activities, entrepreneurial actions, and innovative fields (Lin and Chen, 2018). As it has already been noted, the trend toward green entrepreneurship encompasses the behaviors of an organization concerning risk-taking, action initiative, competitiveness, and autonomy (Pratono et al., 2019). Green entrepreneurship orientation can assist businesses in using green innovation to enhance process efficiency and reduce waste and costs (Ullah and Qaiser Danish, 2020). In addition, businesses that deploy green entrepreneurship combine different resources, minimize negative environmental effects, and identify and employ green innovation opportunities thanks to more controllable

resources (Muangmee et al., 2021). Having considered this discussion, we developed the following hypothesis:

H3: GEO has a significant effect on GI.

Green Innovation and Performance

Green innovation is necessary for hotels to address environmental concerns and maintain their competitive edge while preventing customer rejection (Chang et al., 2011). In addition, it is utilized to follow environmental regulations and enhance environmental management performance (Hsiao and Chuang, 2016). It can therefore be regarded as one of the practical green business concepts.

Many authors have focused on the effects of green innovation and its dimensions on performance in various fields. Prior research indicates that green innovation can positively affect performance in production or service organizations (Tang et al., 2018; Testa et al., 2016). Previous studies on green innovation and performance have shown that green processes and product innovation impact the organization's green image (Chen, 2008; Chen Y.-S. and Chang K.-C., 2013). Seman et al. (2019) reported a significant association among green supply chain management, green innovation, and environmental performance, confirming that green innovation improved environmental performance. Furthermore, according to Chiou et al. (2011), green processes and innovations enhance environmental performance.

Considering the above discussion, and to the best of the authors' knowledge, there have not been many studies examining how green innovation affects environmental performance and organizational performance concurrently in the hotel industry. Consequently, the following hypotheses are proposed:

H4: GI has a significant effect on OP.

H5: GI has a significant effect on EP.

The Mediating Role of Green Innovation

The direct benefits of green innovation on environmental and organizational performance have been studied separately in many studies. However, a few research studies have examined the direct impacts of green entrepreneurship orientation on green innovation. For example, a study examining the data from 416 Chinese companies revealed that green entrepreneurship orientation positively affects the dimensions of green innovation (Guo et al., 2020). Furthermore, in a study in which data from 309 enterprises (SMEs) in the manufacturing sector were collected, the results showed that green innovation mediated the relationship between green resources management and environmental performance (Singh et al., 2020).

Based on the study of Gürlek and Koseoglu (2021), there is a sequential relationship between green entrepreneurship orientation (as a driving factor), green innovation (as a mediating variable), and organizational performance and environmental performance (as consequences). Furthermore, the mediating role of green innovation can be justified based on the transitional approach for developing the mediation hypothesis (Rasoolimanesh et al., 2021a).

However, the mediating role of green innovation in the relationship between green entrepreneurship orientation and organizational performance and environmental performance in the hospitality industry has not been the subject of many research studies. In light of this, the following hypotheses were developed:

H6: GI mediates the relationship between GEO and OP.

H7: GI mediates the relationship between GEO and EP.

The Moderating Role of Managerial Environmental Concern

Managerial environmental concern represents management's perspective on environmental issues (Kumar et al., 2021). Managerial environmental attitudes substantially impact environmental management practices, particularly in industries confronting ecological challenges. (Kushwah et al., 2019). Some scholars emphasized that managerial environmental concern should be considered one of the main factors influencing the adoption of green practices, which can function as a catalyst for green innovation, improving performance, and increasing competition among companies (Qi et al., 2010).

The current study also suggests that managerial environmental concern moderates the relationship between green innovation and performance. Based on RBV, it can be stated that a set of practical strategies that create competitive advantage can enhance performance, among which environmental activities play a crucial role in the success of companies' competitive advantages (Makhloufi et al., 2022). Therefore, managers' attitudes and behaviors are essential for implementing environmental activities that support the company's adaptation and implementation of green practices (Yusliza et al., 2019). The hospitality industry with high MEC can quickly address and solve environmental issues (Munawar et al., 2022). Therefore, green innovation can enhance performance and minimize environmental concerns by utilizing strategies that are consistent with environmental issues in various industries, such as process, service provision, and production (Tang et al., 2018). On the contrary, the hotel industry with low MEC disregards environmental values and allocates few resources to environmental issues and concerns (Munawar et al., 2022). Therefore, although green innovation can affect performance (especially environmental performance), the lack of management awareness of environmental issues reduces the relationship between green innovation and

performance (Tang et al., 2018). Based on this discussion, we have developed the following hypotheses:

H8: MEC moderates the relationship between GI and OP.

H9: MEC moderates the relationship between GI and EP.

The conceptual model of this study is shown in Figure 1.

[Figure 1 about here]

Methodology

Sampling and Data Collection

The data were obtained from employees of hotels in Tehran, including Espinas Hotel, Aramis Hotel, Atana Hotel, Simorgh Hotel, and Ramtin Hotel. These hotels have many specific protocols regarding environmentally friendly practices. Furthermore, these hotels are considered environmentally conscious in the hotel industry. These specific protocols assure us that there are particular procedures to control all aspects of the hotel and its environmental effects. These hotels' mailing addresses were listed on Tehran Hoteliers Association's website. In coordination with these hotels' administrations, data were collected via a questionnaire on the Iranian Porsal website. Overall, 271 usable responses were obtained. Based on Cohen's sampling formula in G*Power software, 139 people were estimated for 18 questions and five variables (Roldán and Sánchez-Franco, 2012). Therefore, it can be stated that the number of responses collected in this study (271 samples) is suitable for data analysis.

Demographic information of participants is provided in Table 1.

[Table 1 about here]

We informed participants that their responses were anonymous and confidential to prevent common method bias. The full collinearity VIF technique (Kock, 2015) and Harman's one-factor test (Rasoolimanesh et al., 2021b) were employed to assess CMB. The study has a common method bias issue if the total variance extracted by a factor is more than 50%. Based on the output of Table 2, this problem does not exist in the data of this study because the total variance extracted by one factor is 41.889% and is less than the recommended threshold of 50%. Furthermore, the results indicate that the full collinearity VIF of all constructs is less than 3.3 (Kock, 2015), meaning no CMB issues exist in this study. Table 2 reports the variables' means, standard deviations, and correlation coefficients.

[Table 2 about here]

Measurement

All variables of the study were measured on a five-point Likert scale. The questionnaire was created using standard questions from prior studies, and its content was evaluated and approved by a panel of academic experts. The questionnaire was then distributed to all participants. GEO consisted of four items adapted from the studies of Guo et al. (2020) and Jiang et al. (2018). Performance included seven items taken from several studies (Asadi et al., 2020; Huang and Li, 2017), divided into EP and OP. GI included four items adapted from previous studies (Huang and Li, 2017; Tseng et al., 2013). The items related to MEC were also adapted from previous studies (Ar, 2012; Tang et al., 2018) (See [Appendix 1](#)). Because of the differences between the population in this study and the studies from which the measurement items were taken, some changes were made to the items to better fit the statistical population of this study and obtain more accurate responses from the statistical sample.

Data Analysis and Results

Assessment of Measurement Model Using PLS-SEM

This study tested the research hypotheses and assessed the conceptual model using structural equation modeling (SEM). Structural equation modeling can be done using various statistical methods depending on the type of variables and characteristics of the study sample. Partial least squares (PLS) is one of the statistical methods used in this field. The PLS-SEM can be applied for theory development or if the study is prediction-oriented. In addition, the PLS-SEM can work with non-normal data and smaller sample sizes (Hair et al., 2017). In the present study, SmartPLS 4 software was used to perform PLS-SEM.

Measurement models (which are associated with the items of latent variables) and structural models (checking the associations between independent and dependent variables) are commonly used in structural equation models (Hair et al., 2017). The SmartPLS software calculates factor loadings, composite reliability, Cronbach's alpha, divergent validity, Average Variance Extracted (AVE), and the HTMT criterion to assess the measurement model. The values over 0.5 for factor loadings and more than 0.7 for Cronbach's alpha and composite reliability indicate the acceptable measurement model (Fornell and Larcker, 1981; Hair et al., 2017). Table 3 shows the values of the reported measurement model for each model's latent variable.

As shown in Table 3, all research constructs meet the minimum requirements for factor loading (at least 0.5) and composite reliability (at least 0.7). Therefore, the reliability of the measurement model is supported. The Average Variance Extracted is a suitable index for determining the convergent validity of research constructs. The minimum acceptable value for this coefficient equals 0.5 (Hair et al., 2017). Assessing

this index among the research constructs shows its score is much higher than the mentioned threshold. Therefore, the constructs are at an acceptable level regarding convergent validity.

[Table 3 about here]

Discriminant validity indicates the degree to which each construct's observed indices measure only their own constructs (Hair et al., 2017). One of the most widely used methods for evaluating the discriminant validity of measurement models is the Fornell-Larcker criterion, which states that the correlation between a construct and other constructs must be bigger than the square root of the average variance extracted by the construct (Fornell and Larcker, 1981). The Heterotrait-Monotrait criterion is also used to measure discriminant validity. If the Heterotrait-Monotrait value is less than 0.90, the discriminant validity between the two reflective constructs is confirmed (Ali et al., 2018; Rasouli et al., 2022). As shown in Table 4, the indicators of each construct have the highest correlation with that construct and have less correlation values with other constructs. Thus, it indicates the acceptability of the discriminant validity of the research model.

[Table 4 about here]

Assessment of Structural Model Using PLS-SEM

Once the measurement model was validated, all hypotheses were tested using the structural model. The structural model is assessed using the Stone-Geisser index (Q^2) and the coefficient of determination (R^2) (Rasoolimanesh and Ali, 2018). The value of the R^2 index is between zero and one, and three values of 0.19, 0.23, and 0.67 are considered weak, medium, and strong values for this index, respectively (Hair et al., 2017; Wetzels

et al., 2009). The Q2 value measures the structural model's predictive power. This value must exceed zero (Ali et al., 2018). Acceptable R^2 and Q^2 values are shown in Table 3 for each endogenous construct.

Bootstrapping function was used in the structural model. The statistical sample in this study was 271, and 5000 were considered the Bootstrapping test samples. Figure 2 shows the relationships between the latent variables that are the same as the research hypotheses, and the numbers shown on these relationships are the path coefficients and the T-statistic.

[Figure 2 about here]

As shown in Table 5, since the t-statistic in H1, H2, H3, H4, and H5 is more than 2.57, all five hypotheses were confirmed at a 99% confidence level. In other words, GEO and GI directly, positively, and significantly affected EP and OP.

[Table 5 about here]

The product coefficient approach method was utilized to analyze GI's mediating role, and the indirect effect's significance was assessed using bias-corrected bootstrap Confidence Intervals (CIs) (Rasoolimanesh et al., 2021a). Table 6 shows GI's mediating role in the relationship between GEO with EP and OP. As shown in Table 6, the indirect effects of GI on the relationship between GEO with EP and OP are significant in both H6 and H7. By establishing the mediating role, we determine the intensity of the indirect effect by calculating the VAF statistic as the ratio between direct and indirect effects. The VAF value is calculated through the results of Bootstrapping. If $VAF > 80\%$, complete mediation is achieved. The value between $20\% < VAF < 80\%$ suggests partial mediation. The mediating role with $VAF < 20\%$ is so insignificant that it is rejected. In this study, the

VAF value of H6 is 0.406, which ranges between 20 and 80%. Therefore, the partial mediation of GI on the relationship between GEO and OP is confirmed. Furthermore, the VAF value in H7 is 0.372, which ranges between 20% and 80%. Thus, GI had a partial mediating role in the relationship between GEO and EP.

To investigate the moderating effect, the interaction effect approach was used (Rasoolimanesh et al. 2021b). Regarding the moderating effect of MEC in H8 (Table 6), the value of the t-statistic is less than the default minimum value of 1.64. Thus, MEC did not moderate the relationship between GI and OP. However, in H9, since the t-statistic is more than 2.57 at the confidence level of 0.01, the moderating effect of MEC on the relationship between GI and EP is confirmed. Moreover, the f square (f^2) for hypothesis 9 is equivalent to 0.099. According to Kenny (2018), values of 0.005, 0.01, and 0.025 for the interaction effect suggest small, medium, and high effect sizes, respectively (Rasoolimanesh et al. 2021c). In this study, the value of f^2 is significant for the interaction effect.

[Table 6 about here]

Figure 3 also demonstrates a stronger correlation between GI and EP when MEC is higher (green line) than when it is lower (red line).

[Figure 3 about here]

Discussion and Conclusion

The present study investigated GEO's effect on hotel industry performance with a more in-depth and different approach than previous studies. Many studies have examined the effect of GEO on EP (Makhloufi et al., 2022; Shafique et al., 2021). However, this study divided performance into two environmental and organizational components. Then, the

simultaneous effects of GEO on EP, OP, and GI were examined (H1, H2, and H3). Finally, the mediating role of GI and the moderating role of MEC on the main relationships were studied (H4, H5, H6, H7, H8, and H9).

To the best of our knowledge, this study is one of the first attempts to investigate the simultaneous relationship between GEO and GI, proposing MECs as a practical approach to improving environmental performance and organizational performance in the hotel industry. In addition, our study contributes to the literature by extending previous research on GEO, GI, and performance under the theoretical framework of RBV theory in the hotel industry. The present study also investigated whether GI mediates the relationship between GEO and hotels' environmental and organizational performance. Moreover, this study helped to examine whether environmental concerns moderate the relationship between GI and hotel's environmental performance and organizational performance.

Consistent with our expectations, the results showed that GEO has a positive effect on hotels' EP and OP (H1 and H2), which is in line with results in the previous studies (Dean and McMullen, 2007; Jiang et al., 2018; Menguc and Ozanne, 2005). The promotion of environmentally responsible practices and innovation within a hotel organization by GEO, which can lead to enhancements in both EP and OP, may be one explanation for why this occurs. For example, hotels prioritizing energy efficiency, waste reduction, and sustainable sourcing may attract environmentally conscious guests, enhance their reputation and customer loyalty, and reduce operational expenses in the long run. Also, GEO was found to have a direct effect on GI, which is in line with the studies of Gürlek and Koseoglu (2021) and Majali et al. (2022). This finding strengthens the argument suggesting that the hotel's GI, OP, and EP can be increased using GEO. GEO allows firms to generate, discover, and exploit new opportunities and gain value.

GEO is significant in taking advantage of innovative options to address customers' growing demand for environmentally friendly products and services. Developing a dynamic capability in the form of GEO allows businesses to expand their market share (Jiang et al., 2018).

Our results confirm that GI positively and significantly affects EP and OP. In addition, the mediating role of GI on the relationship between GEO with OP and EP was significant (H4, H5, H6, and H7). GI may result in adopting eco-friendly practices and technology, lowering consumption of resources and waste production, and improving OP and EP. For instance, installing water-saving devices or adopting energy-efficient lighting systems may result in lower energy and water consumption, respectively, and a consequent decrease in the environmental impact. Also, hotels adding eco-friendly amenities or implementing sustainable food and beverage practices could attract customers who value sustainability, increasing revenue and higher customer satisfaction. Furthermore, GI could lead to the development of new business models and strategies that align with sustainability objectives, enabling hotels to gain a competitive advantage in the market. These findings align with previous studies (Hsiao and Chuang, 2016; Zhang and Ma, 2021).

This study introduced GEO as a determinant of GI to raise hotels' awareness of environmental opportunities and enhance environmental activities. Therefore, the more GEO is involved in GI strategies, the more green practices in hotels are improved, which in turn has a constructive and enhancing effect on hotels' OP. Therefore, through green principles in their activities, hotels can increase EP to meet the needs of society and government standards. Meanwhile, GI can increase product value, differentiation, business profit, and competitive advantage.

In addition, MEC played a positive and significant moderating influence in the association between GI and EP (H9). This suggests that organizations with managers highly concerned about environmental issues may be more effective in implementing green innovation initiatives, resulting in improved environmental performance. In addition, the finding highlights the importance of managerial attitudes and values towards sustainability in shaping the outcomes of green innovation initiatives. This finding is in line with the studies by Saudi et al. (2019) and Tang et al. (2018). However, the moderating role of MEC on the relationship between GI and OP was rejected (H8). This means that even if an organization's management is highly concerned about environmental issues, this may not necessarily strengthen the relationship between green innovation and organizational performance. This finding highlights the need for a more nuanced understanding of the role of MEC in the relationship between GI and OP. Hotels should also be aware that focusing on environmental sustainability alone may not necessarily translate into improving organizational performance.

This finding strengthens the argument suggesting that the relationship between GI and the environmental performance of hotels will be boosted by applying MEC. MEC helps GI by providing a clear picture of environmental activities that need to be improved by understanding external environmental opportunities and threats (Makhloufi et al., 2022). This can happen when managers are involved in green innovation activities.

Although the findings of this study are novel since they have never been investigated before, they are based on previously established principles.

Theoretical Contributions

This research contributes to environmental management knowledge in the hotel industry.

Considering that empirical studies in the hotel industry on performance and GEO are scant, this study adds to the knowledge in the hotel industry and advances the managerial and organizational understanding of how GEO affects EP and OP in hotels. In addition, research on factors driving environmental behaviors is lacking (Irani et al., 2022). Therefore, the current study contributes to understanding pro-environmental attitudes and behaviors, such as MEC and GI, in the hospitality industry. Finally, although GEO has been identified as a driver in enhancing EP and OP in the hospitality industry, little research has examined GI and MEC as antecedents to examine the indirect effects of GEO on EP and OP in this industry. Therefore, the present study advances our understanding of how GEO affects EP and OP by providing evidence about the mechanism by which GEO influences EP and OP in this industry.

The present study's results about the direct and indirect effects of GI point to the need for a comprehensive framework for investigating the proposed model. This study also contributes to the body of knowledge by addressing the topic of OP and EP in the service sector, particularly the hotel industry. Additionally, there has been little focus on environmentally conscious innovation and environmental concern in service management environments. Therefore, this study examined GI and environmental concerns from the perspective of MEC in services. As a result, it contributes to the knowledge about how they have an effect as a mediator and moderator on EP and OP in the service sector, especially in the hospitality industry.

Practical Implications

The findings of this study can have various practical recommendations. First, enhancing GEO and GI to solve environmental problems is essential. We practically investigated the mechanism of the effect of GEO on performance. Hotels and other industries can apply GEO to seize potential market opportunities. Entrepreneurial activities provide self-

awareness. Therefore, managers need to reconfigure internal resources to address the knowledge gap in entrepreneurial activities. GEO is utilized to overcome financial and environmental capital constraints, which rarely appear as new opportunities. Therefore, managers can set their businesses apart from their competitors by seizing and developing innovative green entrepreneurship-related initiatives.

Second, the findings suggest that GEO significantly affects performance through GI. Therefore, to improve employees' ability and motivation, businesses must use a variety of innovative GI approaches, such as environmentally friendly innovation, green technological innovation, green education, and increasing green knowledge. Furthermore, employees assist them in green management by creating green human resources. To increase the capacity for green innovation, managers can use the knowledge of customers and employees and, with the help of green groups and environmental organizations, meet the environmental expectations of the community and fulfill their social responsibility.

It is also suggested that hotel managers consider green approaches such as GEO and GI seriously and be more involved in eco-friendly activities to benefit from green business opportunities. One of the most important steps to adapt to environmental challenges is to train hotel employees to become aware of new environmental protection practices using various training methods. Additionally, by declaring environmental protection policies and initiatives to employees, hotel managers can play a significant role in implementing ecologically friendly strategies.

Hotels and other lodging facilities should deploy green practices such as GEO and GI in their environment to attract environmentally conscious customers or position themselves as green or environmentally friendly businesses (del Mar Alonso-Almeida and Álvarez-Gil, 2018). By adopting green practices, hotels can benefit in the long run,

contribute to society's preservation of the environment, and set an example for other lodging providers.

Furthermore, MEC moderated the effect of GI on OP and EP. The results reveal that managers' behaviors and attitudes toward environmental management are crucial since these elements aid businesses in adopting GI strategies that improve their EP and contribute to green performance. Therefore, senior executives must promote GI strategies and choose the best investment method to boost green performance. In addition, senior executives should always talk to their employees about environmental policies so that employees can directly feel the efforts of managers and the company to create a green performance. People who attach great importance to environmental behaviors can be a significant target for favorable environmental actions and green entrepreneurship. By identifying these people among employees, all environmental programs in green entrepreneurship can be implemented because this group is more willing than others to accept these favorable environmental measures.

Managers and policymakers in the hotel industry should encourage GI to make the most of their hotel's capabilities and resources and gain a competitive edge (Wang et al., 2020). Considering that environmental goals require support, hotels need environmentally concerned managers. To facilitate and encourage entrepreneurial approaches, hoteliers' unions and associations should support GI in hotels by establishing regulations and mechanisms focused on developing green hotels. Furthermore, hotel managers should prioritize obtaining the necessary competitive advantages in environmental management. We acknowledge that GEO, GI, and MEC can be part of the crucial conditions to obtain a competitive advantage. In addition, to raise awareness of the advantages of GEO and GI and to develop consistent strategies for implementing

GEO and employing GI, hotels should conduct more in-depth research to gather evidence of how GEO and GI improve OP.

Finally, it is suggested that hospitality and hotel management manage the environmental issues of the tourism industry to reduce their costs. It is also recommended that they identify environmental problems and issues arising from hotel operations through field and experimental investigations and develop necessary policies, strategies, and plans to solve them using the advice of specialists and experts in this field.

Limitations and Future Studies

This study's limitations were as follows: first, since this research was limited to the hotel industry, the findings cannot be generalized to other sectors. It is recommended that the conceptual model of this study be examined in different industries, such as the car industry, clothing industry, food industry, etc., in future studies.

Second, this study takes a broad view of GI. Therefore, it is recommended that future research investigate how various GI dimensions may affect the relationships in this study's conceptual model and develop a thorough understanding of how GEO and GI relate to performance in the hotel business.

Finally, the present study showed that GEO could positively affect EP and OP. GI also contributes to this connection. In addition, the results indicated that MEC moderates the relationship between GI, EP, and OP. These findings offer new insight into the mechanism of the impact of GEO on EP and OP, which can contribute to corporate environmental management and sustainable development. Thus, future research should place a greater emphasis on the models of relationships between these variables and investigate the role of other constructs such as environmental values, green organizational

culture, environmental knowledge, etc., which can help understand green management in organizations.

References

- Akbari, M., Hataminejad, M., & Hooshmand Chaijani, M. (2018). Investigating the Effect of Social Capital and Market Performance of Hotels on the Economic Dynamics of Metropolitan Areas: A Case Study of the Market Performance of Tehran Hotels. *Urban Planning Knowledge*, 2(1), 41-55.
- Ali, F., Rasoolimanesh, S. M., Sarstedt, M., Ringle, C. M., & Ryu, K. (2018). An assessment of the use of partial least squares structural equation modeling (PLS-SEM) in hospitality research. *International Journal of Contemporary Hospitality Management*, 30(1), 514-538. <https://doi.org/10.1108/IJCHM-10-2016-0568>
- Ar, I. M. (2012). The impact of green product innovation on firm performance and competitive capability: the moderating role of managerial environmental concern. *Procedia-Social and Behavioral Sciences*, 62, 854-864. <https://doi.org/10.1016/j.sbspro.2012.09.144>
- Asadi, S., Pourhashemi, S. O., Nilashi, M., Abdullah, R., Samad, S., Yadegaridehkordi, E., Razali, N. S. (2020). Investigating influence of green innovation on sustainability performance: A case on Malaysian hotel industry. *Journal of cleaner production*, 120860. <https://doi.org/10.1016/j.jclepro.2020.120860>
- Ashford, N. A. (1993). Understanding technological responses of industrial firms to environmental problems: Implications for government policy (chapter). *Island Press*.
- Babaei, Y., & Fani, M. (2022). The Effect of Green Human Resource Management on Environmental Citizenship Behavior and Environmentally-Friendly Behaviors of Hotel Staff. *Tourism Management*, 16(56), 211-249.
- Bachinger, M., & Rau, H. (2016). Green Entrepreneurship: What Drives Resource Efficiency in Tourism? *Competence-Based Innovation in Hospitality and Tourism* (pp. 63-80): Routledge. <https://doi.org/10.4324/9781315573144>
- Bagheri, M., Shojaei, P., Jahromi, S. A., & Kiani, M. (2020). Proposing a model for assessing green hotels based on ecological indicators. *Tourism and hospitality research*, 20(4), 406-422. <https://doi.org/10.1177/1467358420904123>
- Borghesi, S., Cainelli, G., & Mazzanti, M. (2015). Linking emission trading to environmental innovation: evidence from the Italian manufacturing industry. *Research Policy*, 44(3), 669-683. <https://doi.org/10.1016/j.respol.2014.10.014>
- Brulhart, F., Gherra, S., & Marais, M. (2017). Are environmental strategies profitable for companies? The key role of natural competences from a resource-based view. *Management Decision*, 55(10), 2126-2148. <https://doi.org/10.1108/MD-12-2016-0893>
- Chang, S., Gong, Y., & Shum, C. (2011). Promoting innovation in hospitality companies through human resource management practices. *International Journal of Hospitality Management*, 30(4), 812-818. <https://doi.org/10.1016/j.ijhm.2011.01.001>
- Chen, Y.-S. (2008). The driver of green innovation and green image—green core competence. *Journal of business ethics*, 81(3), 531-543. <https://doi.org/10.1007/s10551-007-9522-1>

- Chen, Y.-S., & Chang, C.-H. (2013). The determinants of green product development performance: Green dynamic capabilities, green transformational leadership, and green creativity. *Journal of business ethics*, 116, 107-119. <https://doi.org/10.1007/s10551-012-1452-x>
- Chen, Y.-S., & Chang, K.-C. (2013). The nonlinear effect of green innovation on the corporate competitive advantage. *Quality & Quantity*, 47(1), 271-286. <https://doi.org/10.1007/s11135-011-9518-x>
- 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, 331-339. <https://doi.org/10.1007/s10551-006-9025-5>
- Chiou, T.-Y., Chan, H. K., Lettice, F., & Chung, S. H. (2011). The influence of greening the suppliers and green innovation on environmental performance and competitive advantage in Taiwan. *Transportation Research Part E: Logistics and Transportation Review*, 47(6), 822-836. <https://doi.org/10.1016/j.tre.2011.05.016>
- Cocca, S., & Ganz, W. (2015). Requirements for developing green services. *The Service Industries Journal*, 35(4), 179-196. <https://doi.org/10.1080/02642069.2014.990002>
- Dean, T. J., & McMullen, J. S. (2007). Toward a theory of sustainable entrepreneurship: Reducing environmental degradation through entrepreneurial action. *Journal of business venturing*, 22(1), 50-76. <https://doi.org/10.1016/j.jbusvent.2005.09.003>
- del Mar Alonso-Almeida, M., & Álvarez-Gil, M. J. (2018). Green entrepreneurship in tourism *The Emerald Handbook of Entrepreneurship in Tourism, Travel and Hospitality* (pp. 369-386): Emerald Publishing Limited. <https://doi.org/10.1108/978-1-78743-529-220181027>
- Elshaer, I. A., Azazz, A. M., & Fayyad, S. (2023). Green Management and Sustainable Performance of Small-and Medium-Sized Hospitality Businesses: Moderating the Role of an Employee's Pro-Environmental Behaviour. *International Journal of Environmental Research and Public Health*, 20(3), 2244. <https://doi.org/10.3390/ijerph20032244>
- Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics: Sage Publications Sage CA: Los Angeles, CA. <https://doi.org/10.1177/002224378101800313>
- Galdeano-Gómez, E. (2008). Does an endogenous relationship exist between environmental and economic performance? A resource-based view on the horticultural sector. *Environmental and resource economics*, 40(1), 73-89. <https://doi.org/10.1007/s10640-007-9141-4>
- Gast, J., Gundolf, K., & Cesinger, B. (2017). Doing business in a green way: A systematic review of the ecological sustainability entrepreneurship literature and future research directions. *Journal of cleaner production*, 147, 44-56. <https://doi.org/10.1016/j.jclepro.2017.01.065>
- Guo, Y., Wang, L., & Chen, Y. (2020). Green Entrepreneurial Orientation and Green Innovation: The Mediating Effect of Supply Chain Learning. *SAGE Open*, 10(1). <https://doi.org/10.1177/2158244019898798>
- Gürlek, M., & Koseoglu, M. A. (2021). Green innovation research in the field of hospitality and tourism: The construct, antecedents, consequences, and future outlook. *The Service Industries Journal*, 41(11-12), 734-766. <https://doi.org/10.1080/02642069.2021.1929930>
- Hair, J. F., Sarstedt, M., Ringle, C. M., & Gudergan, S. P. (2017). *Advanced issues in partial least squares structural equation modeling*: SAGE publications.
- Hamdoun, M. (2020). The antecedents and outcomes of environmental management based on the resource-based view: A systematic literature review. *Management of*

- Environmental Quality: An International Journal*, 31(2), 451-469.
<https://doi.org/10.1108/MEQ-12-2019-0280>
- Hitt, M. A., Ireland, R. D., Sirmon, D. G., & Trahms, C. A. (2011). Strategic entrepreneurship: creating value for individuals, organizations, and society. *Academy of management perspectives*, 25(2), 57-75.
<https://doi.org/10.5465/amp.25.2.57>
- Hsiao, T.-Y., & Chuang, C.-M. (2016). Creating shared value through implementing green practices for star hotels. *Asia Pacific Journal of Tourism Research*, 21(6), 678-696. <https://doi.org/10.1080/10941665.2015.1068194>
- 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>
- Hussain, J., Ismail, K., & Akhtar, C. S. (2015). Linking entrepreneurial orientation with organizational performance of small and medium sized enterprises: A conceptual approach. *Asian Social Science*, 11(7), 1. DOI/10.5539/ass.v11n7p1
- Hwang, J., & Choi, J. K. (2017). An investigation of passengers' psychological benefits from green brands in an environmentally friendly airline context: The moderating role of gender. *Sustainability*, 10(1), 80. <https://doi.org/10.3390/su10010080>
- Irani, F., Kiliç, H., & Adeshola, I. (2022). Impact of green human resource management practices on the environmental performance of green hotels. *Journal of Hospitality Marketing & Management*, 31(5), 570-600.
<https://doi.org/10.1080/19368623.2022.2022554>
- Jiang, W., Chai, H., Shao, J., & Feng, T. (2018). Green entrepreneurial orientation for enhancing firm performance: A dynamic capability perspective. *Journal of cleaner production*, 198, 1311-1323.
<https://doi.org/10.1016/j.jclepro.2018.07.104>
- Kanan, M., Taha, B., Saleh, Y., Alsayed, M., Assaf, R., Ben Hassen, M., & Tunsı, W. (2023). Green Innovation as a Mediator between Green Human Resource Management Practices and Sustainable Performance in Palestinian Manufacturing Industries. *Sustainability*, 15(2), 1077.
<https://doi.org/10.3390/su15021077>
- Khanra, S., Kaur, P., Joseph, R. P., Malik, A., & Dhir, A. (2022). A resource-based view of green innovation as a strategic firm resource: Present status and future directions. *Business Strategy and the Environment*, 31(4), 1395-1413.
<https://doi.org/10.1002/bse.2961>
- Kim, S.-H., Lee, K., & Fairhurst, A. (2017). The review of "green" research in hospitality, 2000-2014: Current trends and future research directions. *International Journal of Contemporary Hospitality Management*, 29(1), 226-247.
<https://doi.org/10.1108/IJCHM-11-2014-0562>
- Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of E-Collaboration*, 11(4), 1-10.
- Kumar, S., Dhir, A., Talwar, S., Chakraborty, D., & Kaur, P. (2021). What drives brand love for natural products? The moderating role of household size. *Journal of Retailing and Consumer Services*, 58, 102329.
<https://doi.org/10.1016/j.jretconser.2020.102329>
- Kushwah, S., Dhir, A., & Sagar, M. (2019). Ethical consumption intentions and choice behavior towards organic food. Moderation role of buying and environmental concerns. *Journal of cleaner production*, 236, 117519.
<https://doi.org/10.1016/j.jclepro.2019.06.350>

- Lin, Y.-H., & Chen, H.-C. (2018). Critical factors for enhancing green service innovation: Linking green relationship quality and green entrepreneurial orientation. *Journal of Hospitality and Tourism Technology*, 9(2), 188-203. <https://doi.org/10.1108/JHTT-02-2017-0014>
- Majali, T. e., Alkaraki, M., Asad, M., Aladwan, N., & Aledeinat, M. (2022). Green Transformational Leadership, Green Entrepreneurial Orientation and Performance of SMEs: The Mediating Role of Green Product Innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(4), 191. <https://doi.org/10.3390/joitmc8040191>
- Makhloufi, L., Laghouag, A. A., Meirun, T., & Belaid, F. (2022). Impact of green entrepreneurship orientation on environmental performance: The natural resource-based view and environmental policy perspective. *Business Strategy and the Environment*, 31(1), 425-444. <https://doi.org/10.1002/bse.2902>
- Menguc, B., & Ozanne, L. K. (2005). Challenges of the "green imperative": A natural resource-based approach to the environmental orientation–business performance relationship. *Journal of Business research*, 58(4), 430-438. <https://doi.org/10.1016/j.jbusres.2003.09.002>
- Muangmee, C., Dacko-Pikiewicz, Z., Meekaewkunchorn, N., Kassakorn, N., & Khalid, B. (2021). Green entrepreneurial orientation and green innovation in small and medium-sized enterprises (SMEs). *Social Sciences*, 10(4), 136. <https://doi.org/10.3390/socsci10040136>
- Munawar, S., Yousaf, H. Q., Ahmed, M., & Rehman, S. (2022). Effects of green human resource management on green innovation through green human capital, environmental knowledge, and managerial environmental concern. *Journal of Hospitality and Tourism Management*, 52, 141-150. <https://doi.org/10.1016/j.jhtm.2022.06.009>
- Pereira-Moliner, J., López-Gamero, M.D., Font, X., Molina-Azorín, J.F., Tarí, J.J. & Pertusa-Ortega, E.M. (2021). Sustainability, Competitive Advantages and Performance in the Hotel Industry: A Synergistic Relationship. *Journal of Tourism and Services*, 23(12), 132-149. <https://doi.org/10.29036/jots.v12i23.282>
- Pham, N. T., Thanh, T. V., Tučková, Z., & Thuy, V. T. N. (2020). The role of green human resource management in driving hotel's environmental performance: Interaction and mediation analysis. *International Journal of Hospitality Management*, 88, 102392. <https://doi.org/10.1016/j.ijhm.2019.102392>
- Pratono, A. H., Darmasetiawan, N. K., Yudianto, A., & Jeong, B. G. (2019). Achieving sustainable competitive advantage through green entrepreneurial orientation and market orientation: The role of inter-organizational learning. *The Bottom Line*, 32(1), 2-15. <https://doi.org/10.1108/BL-10-2018-0045>
- Przychodzen, W., Przychodzen, J., & Lerner, D. A. (2016). Critical factors for transforming creativity into sustainability. *Journal of cleaner production*, 135, 1514-1523. <https://doi.org/10.1016/j.jclepro.2016.04.102>
- Qi, G., Shen, L. Y., Zeng, S., & Jorge, O. J. (2010). The drivers for contractors' green innovation: an industry perspective. *Journal of cleaner production*, 18(14), 1358-1365. <https://doi.org/10.1016/j.jclepro.2010.04.017>
- Rahnama, H., & Rajabpour, S. (2017). Identifying effective factors on consumers' choice behavior toward green products: the case of Tehran, the capital of Iran. *Environmental Science and Pollution Research*, 24, 911-925. <https://doi.org/10.1007/s11356-016-7791-x>

- Rasoolimanesh, S. M., & Ali, F., (2018). Partial least squares-structural equation modeling in hospitality and tourism. *Journal of Hospitality and Tourism Technology*, 9(3), 238-248.
- Rasoolimanesh, S. M., Wang, M., Roldan, J. L., & Kunasekaran, P. (2021a). Are we in right path for mediation analysis? Reviewing the literature and proposing robust guidelines. *Journal of Hospitality and Tourism Management*, 48, 395-405. <https://doi.org/10.1016/j.jhtm.2021.07.013>
- Rasoolimanesh, S. M., Seyfi, S., Hall, C. M., & Hatamifar, P. (2021b). Understanding memorable tourism experiences and behavioural intentions of heritage tourists. *Journal of Destination Marketing & Management*, 21, 100621. <https://doi.org/10.1016/j.jdmm.2021.100621>
- Rasoolimanesh, S. M., Wang, M., Mikulić, J., & Kunasekaran, P. (2021c). A critical review of moderation analysis in tourism and hospitality research toward robust guidelines. *International Journal of Contemporary Hospitality Management*, 33(12), 4311-4333. <https://doi.org/10.1108/IJCHM-02-2021-0272>
- Rasouli, N., Rasoolimanesh, S. M., Rahmani, A. K., Momayez, A., & Torabi, M. A. (2022). Effects of customer forgiveness on brand betrayal and brand hate in restaurant service failures: does apology letter matter? *Journal of Hospitality Marketing & Management*, 31(6), 662-687. <https://doi.org/10.1080/19368623.2022.2043800>
- Rhou, Y., & Singal, M. (2020). A review of the business case for CSR in the hospitality industry. *International Journal of Hospitality Management*, 84, 102330. <https://doi.org/10.1016/j.ijhm.2019.102330>
- Roldán, J. L., & Sánchez-Franco, M. J. (2012). Variance-based structural equation modeling: Guidelines for using partial least squares in information systems research *Research methodologies, innovations and philosophies in software systems engineering and information systems* (pp. 193-221): IGI Global.
- Saudi, M. H. M., Sinaga, O., & Zainudin, Z. (2019). The effect of green innovation in influencing sustainable performance: Moderating role of managerial environmental concern. *International Journal of Supply Chain Management*, 8(1), 303-310. <https://doi.org/10.59160/ijscm.v8i1.2896>
- Schaefer, K., Corner, P. D., & Kearins, K. (2015). Social, environmental and sustainable entrepreneurship research: what is needed for sustainability-as-flourishing? *Organization & environment*, 28(4), 394-413. <https://doi.org/10.1177/1086026615621111>
- Seman, N. A. A., Govindan, K., Mardani, A., Zakuan, N., Saman, M. Z. M., Hooker, R. E., & Ozkul, S. (2019). The mediating effect of green innovation on the relationship between green supply chain management and environmental performance. *Journal of cleaner production*, 229, 115-127. <https://doi.org/10.1016/j.jclepro.2019.03.211>
- Shafique, I., Kalyar, M. N., & Mehwish, N. (2021). Organizational ambidexterity, green entrepreneurial orientation, and environmental performance in SMEs context: Examining the moderating role of perceived CSR. *Corporate Social Responsibility and Environmental Management*, 28(1), 446-456. <https://doi.org/10.1002/csr.2060>
- Singh, S. K., Del Giudice, M., 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. <https://doi.org/10.1016/j.techfore.2019.119762>

- Song, W., Yu, H., & Xu, H. (2020). Effects of green human resource management and managerial environmental concern on green innovation. *European Journal of Innovation Management*, 24(3), 951-967. <https://doi.org/10.1108/EJIM-11-2019-0315>
- Tang, M., Walsh, G., Lerner, D., Fitza, M. A., & Li, Q. (2018). Green innovation, managerial concern and firm performance: An empirical study. *Business Strategy and the Environment*, 27(1), 39-51. <https://doi.org/10.1002/bse.1981>
- Testa, F., Gusmerottia, N. M., Corsini, F., Passetti, E., & Iraldo, F. (2016). Factors affecting environmental management by small and micro firms: The importance of entrepreneurs' attitudes and environmental investment. *Corporate Social Responsibility and Environmental Management*, 23(6), 373-385. <https://doi.org/10.1002/csr.1382>
- Trang, H. L. T., Lee, J.-S., & Han, H. (2019). How do green attributes elicit pro-environmental behaviors in guests? The case of green hotels in Vietnam. *Journal of Travel & Tourism Marketing*, 36(1), 14-28. <https://doi.org/10.1080/10548408.2018.1486782>
- Tseng, M.-L., Wang, R., Chiu, A. S., Geng, Y., & Lin, Y. H. (2013). Improving performance of green innovation practices under uncertainty. *Journal of cleaner production*, 40, 71-82. <https://doi.org/10.1016/j.jclepro.2011.10.009>
- Ullah, S., & Qaiser Danish, R. (2020). The Impact of Green Entrepreneurial Orientation on Firm Performance through Green Innovation: The Moderating Role of Strategic Green Marketing Orientation. *European Online Journal of Natural and Social Sciences*, 9(2), 306-317.
- Umrani, W. A., Channa, N. A., Yousaf, A., Ahmed, U., Pahi, M. H., & Ramayah, T. (2020). Greening the workforce to achieve environmental performance in hotel industry: A serial mediation model. *Journal of Hospitality and Tourism Management*, 44, 50-60. <https://doi.org/10.1016/j.jhtm.2020.05.007>
- Wagner, M. (2013). 'Green'human resource benefits: do they matter as determinants of environmental management system implementation? *Journal of business ethics*, 114(3), 443-456. <https://doi.org/10.1007/s10551-012-1356-9>
- Wang, C., Zhang, X. e., & Teng, X. (2022). How to convert green entrepreneurial orientation into green innovation: The role of knowledge creation process and green absorptive capacity. *Business Strategy and the Environment*, 32(4), 1260-1273. <https://doi.org/10.1002/bse.3187>
- Wang, J. (2022). Building competitive advantage for hospitality companies: The roles of green innovation strategic orientation and green intellectual capital. *International Journal of Hospitality Management*, 102, 103161. <https://doi.org/10.1016/j.ijhm.2022.103161>
- Wang, Y., Font, X., & Liu, J. (2020). Antecedents, mediation effects and outcomes of hotel eco-innovation practice. *International Journal of Hospitality Management*, 85, 102345. <https://doi.org/10.1016/j.ijhm.2019.102345>
- Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic management journal*, 5(2), 171-180. <https://doi.org/10.1002/smj.4250050207>
- Wetzels, M., Odekerken-Schröder, G., & Van Oppen, C. (2009). Using PLS path modeling for assessing hierarchical construct models: Guidelines and empirical illustration. *MIS quarterly*, 177-195. <https://doi.org/10.2307/20650284>
- 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. <https://doi.org/10.1016/j.jbusres.2019.01.010>

- Yu, J., Park, J., Lee, K., & Han, H. (2021). Can environmentally sustainable development and green innovation of hotels trigger the formation of a positive brand and price premium? *International Journal of Environmental Research and Public Health*, 18(6), 3275. <https://doi.org/10.3390/ijerph18063275>
- Yu, W., Ramanathan, R., & Nath, P. (2017). Environmental pressures and performance: An analysis of the roles of environmental innovation strategy and marketing capability. *Technological Forecasting and Social Change*, 117, 160-169. <https://doi.org/10.1016/j.techfore.2016.12.005>
- Yunus, E. N., & Michalisin, M. D. (2016). Sustained competitive advantage through green supply chain management practices: a natural-resource-based view approach. *International Journal of Services and Operations Management*, 25(2), 135-154. <https://doi.org/10.1504/IJSOM.2016.078890>
- Yusliza, M.-Y., Norazmi, N. A., Jabbour, C. J. C., Fernando, Y., Fawehinmi, O., & Seles, B. M. R. P. (2019). Top management commitment, corporate social responsibility and green human resource management: A Malaysian study. *Benchmarking: An International Journal*, 26(6), 2051-2078. <https://doi.org/10.1108/BIJ-09-2018-0283>
- 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, Q., & Ma, Y. (2021). The impact of environmental management on firm economic performance: The mediating effect of green innovation and the moderating effect of environmental leadership. *Journal of cleaner production*, 292, 126057. <https://doi.org/10.1016/j.jclepro.2021.126057>

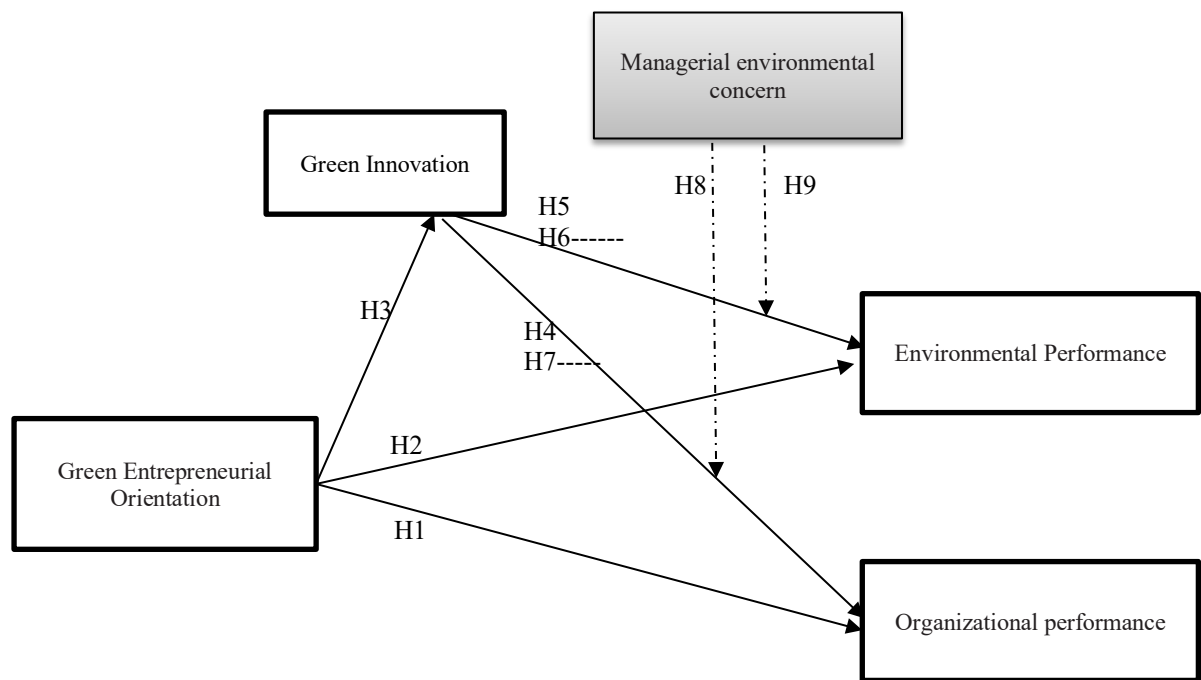


Fig. 1. Conceptual framework

Table 1. Demographic characteristics

Characteristics	Number of respondents (n=271)	Percentage (%)
Gender		
Female	132	48.7
Male	139	51.3
Age		
Below 29	39	14.4
29–40 years	169	62.4
More than 40 years	63	60.2
Tenure		
<3 years	60	22.1
3 to 6 years	117	43.2
6 years>	94	34.7

Table 2. CMV by full collinearity VIF and Harman's single-factor test

	Mean	Std. Deviation	Correlation Coefficient					VIF	% of Variance
			EP	GEO	GI	MEC	OP		
EP	3.74	0.77	-					1.930	
GEO	3.59	0.87	0.591**	-				2.040	
GI	3.85	0.83	0.564**	0.545**	-			1.942	41.889
MEC	3.65	0.91	0.589**	0.620**	0.588**	-		2.273	
OP	3.70	0.87	0.538**	0.612**	0.622**	0.665**	-	2.288	

Notes: OP: Organizational performance; EP: Environmental Performance; GEO: Green Entrepreneurial Orientation; GI: Green Innovation; MEC: Managerial environmental concern.

Notes: **Correlation is significant at the 0.01 level (2-tailed).

Table 3. Measurement items and validity assessment

Construct	Item	Outer Loadings	CA	CR	AVE	R ²	Q ²
OP	OP1	0.761	0.807	0.887	0.725	0.562	0.393
	OP2	0.885					
	OP3	0.901					
EP	EP1	0.769	0.776	0.856	0.598	0.527	0.299
	EP2	0.813					
	EP3	0.732					
GEO	EP4	0.776	0.824	0.884	0.656	-	-
	GEO1	0.735					
	GEO2	0.842					
	GEO3	0.859					
GI	GEO4	0.797	0.836	0.890	0.670	0.299	0.196
	GI1	0.822					
	GI2	0.820					
	GI3	0.795					
MEC	GI4	0.837	0.808	0.888	0.726	-	-
	MEC1	0.900					
	MEC2	0.890					
	MEC3	0.761					

Notes: OP: Organizational performance; EP: Environmental Performance; GEO: Green Entrepreneurial Orientation; GI: Green Innovation; MEC: Managerial environmental concern.

Table 4. Discriminant validity

	Fornell-Larcker					HTMT				
	EP	GEO	GI	MEC	OP	EP	GEO	GI	MEC	OP
EP	0.773*					EP				
GEO	0.590	0.810				GEO	0.738			
GI	0.579	0.547	0.819			GI	0.713	0.658		
MEC	0.594	0.622	0.568	0.852		MEC	0.748	0.765	0.689	
OP	0.543	0.612	0.619	0.670	0.852	OP	0.682	0.751	0.754	0.826

Notes: OP: Organizational performance; EP: Environmental Performance; GEO: Green Entrepreneurial Orientation; GI: Green Innovation; MEC: Managerial environmental concern.

Note: * signifies $\sqrt{\text{AVE}}$

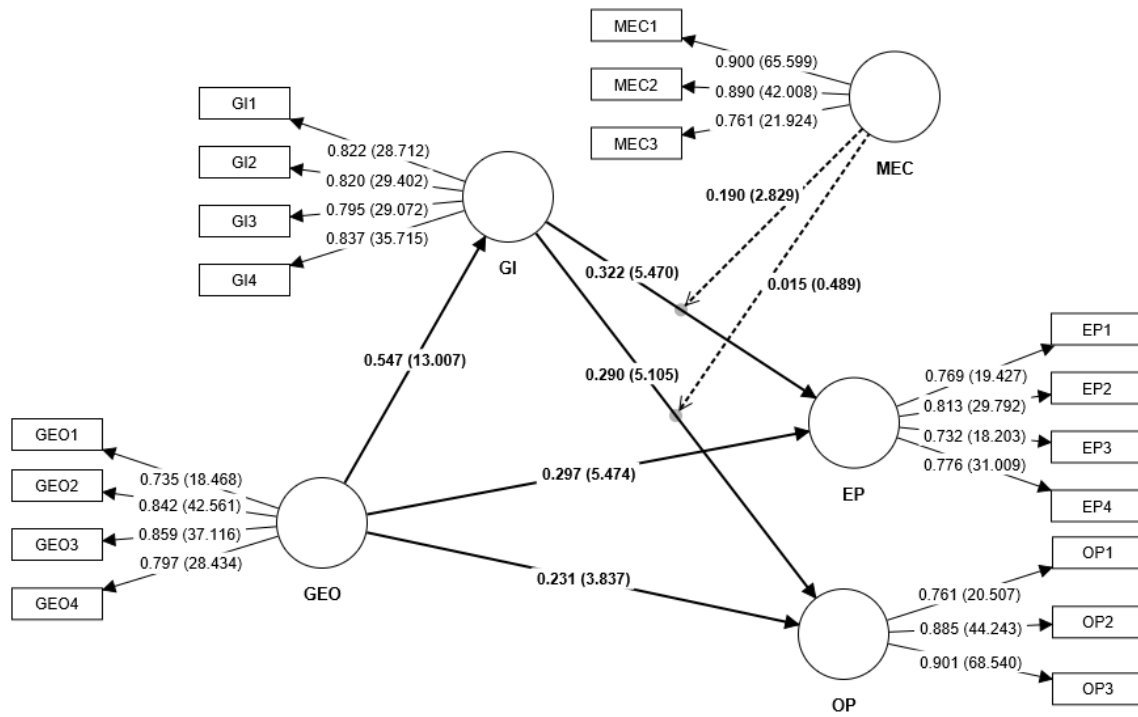


Fig. 2. Results of structural model

Notes: OP: Organizational performance; EP: Environmental Performance; GEO: Green Entrepreneurial Orientation; GI: Green Innovation; MEC: Managerial environmental concern.

Table 5. Direct testing results

Hypothesis path	Original Sample	T Statistics	Pass or not
H1: GEO -> OP	0.231***	3.837	Pass
H2: GEO -> EP	0.297***	5.474	Pass
H3: GEO -> GI	0.547***	13.007	Pass
H4: GI -> OP	0.290**	5.105	Pass
H5: GI -> EP	0.322***	5.470	Pass

Notes: OP: Organizational performance; EP: Environmental Performance; GEO: Green Entrepreneurial Orientation; GI: Green Innovation.

Note: Significance level= ** <0.05, *** <0.01

Table 6. Mediating and Moderating effects

Mediating effects					
Path	Bootstrap estimated value and confidence interval		VAF	Pass or not	
	<u>Path Coefficient</u>	<u>Confidence Interval (95%)</u>			
H6: GEO -> GI -> OP	0.158***	[0.096, 0.231]	0.406	Pass	
H7: GEO -> GI -> EP	0.176***	[0.118, 0.244]	0.372	Pass	
Moderating effects					
Path	Original Sample	T Statistics	P Values	f ²	Pass or not
H8: MEC*GI -> OP	0.015 ^{ns}	0.489	0.625	0.001	not
H9: MEC*GI -> EP	0.194***	2.829	0.000	0.099	Pass

Notes: OP: Organizational performance; EP: Environmental Performance; GEO: Green Entrepreneurial Orientation; GI: Green Innovation; MEC: Managerial environmental concern.

Note: Significance level= *** <0.01, ^{ns}= NOT Significance



Fig. 3. Moderating effect of Managerial environmental concern (Environmental Performance).

Appendix 1. List of adapted items

Construct	Measurement items	Code	Source
Organizational performance	In our hotel, sales growth is good	OP1	Huang & Li, (2017).
	In our hotel, profit growth is good	OP2	
	In our hotel, Market share growth is good	OP3	
Environmental Performance	Over the last three years, in our hotel, the frequency of environmental accidents has reduced	EP1	Asadi,. etal (2020). Jiang,. etal (2018).
	Over the last three years, our hotel's overall environmental performance has improved.	EP2	
	During the last three years, resource use, such as water, energy, and gas, has declined.	EP3	
	Over the last three years, our hotel's environmental situation has improved	EP4	
Green Entrepreneurial Orientation	Our hotel tends to take green initiatives so that competitors respond to	GEO1	Guo,. etal (2020). Jiang,. etal (2018).
	Our hotel tends to be a market leader, always first in offering green products, services, or technologies	GEO2	
	When faced with uncertainty, we tend to take a proactive approach in order to seize potential green possibilities.	GEO3	
	We usually assume a competitive 'undo-the-competitors' mentality when dealing with competitors.	GEO4	
Green Innovation	The hotel's employees and managers believe that cleaner technology should be utilized to save money and prevent pollutions such as energy, water, and waste.	GI1	Tseng,. etal. (2013). Kawai,. etal (2018). Huang & Li, (2017).
	The hotel's employees and managers believe that the hotel's manufacturing process efficiently reduces hazardous chemical or waste emissions.	GI2	
	The hotel's employees and managers believe that while developing or designing services, the hotel will carefully consider if the product is easy to recycle, reuse, and degrade.	GI3	
	The hotel's employees and managers believe that the new green service competitiveness level reflects their understanding of client expectations.	GI4	
Managerial environmental concern	Our hotel managers consider environmental innovation a critical component of their overall strategy.	MEC1	Tang,. etal (2018). Ar, (2012).
	Our hotel managers believe that the majority of environmental advances are beneficial.	MEC2	
	Our hotel managers consider environmental innovation to be a successful approach.	MEC3	
Likert Scale (1: Strongly Disagree, 5: Strongly Agree)			