

Research Article 01

Environmentally Sustainable Practices and Hotel Performance: Insights from Diffusion of Innovation Theory

K.V.A. Shantha

Department of Accounting and Finance, Faculty of Management Studies, The Open University of Sri Lanka, Nawala, Nugegoda, Sri Lanka.
<https://orcid.org/0000-0001-8773-1225>

Abstract

In response to global sustainability challenges, hotels, as the most resource-intensive businesses in the hospitality industry, face constant pressure to adopt environmentally sustainable practices. Consequently, researchers are increasingly interested in identifying the factors that influence the adoption of these practices. However, existing studies have typically examined these factors in isolation without capturing the complexity of their interactions, which limits a comprehensive understanding of this phenomenon. Hence, based on the insights from Diffusion of Innovation Theory, this study aims to address this gap by providing a comprehensive analysis of these factors with their interconnected effects within a moderated mediation conceptual model. Data were collected from 226 managers of 3- to 5-star-rated hotels and analyzed using the PROCESS procedure for SPSS. Extending the existing literature on environmentally sustainable practices in hotels, the study's results show that employee engagement partially mediates the effect of perceived usefulness of adopting environmentally sustainable practices on hotel performance. This partial mediation suggests that the potential positive effect of environmentally sustainable practices on hotel performance is facilitated by the presence of employee engagement towards such practices. Further, the study supports the role of stakeholder demand in amplifying the potential benefits of these practices. Specifically, increased stakeholder demand can inflate the positive effect of the perceived usefulness of sustainable practices on employee engagement towards them. Accordingly, the study concludes that the successful adoption of environmentally sustainable practices and their impact on hotel performance are influenced by the interconnected effects of perceived usefulness, stakeholder demand, and employee engagement. These findings offer valuable insights for hotel owners and managers, and policymakers to improve the adoption of sustainable practices and thereby contribute to achieving Sustainable Development Goals.

Keywords: Employee engagement, environmentally sustainable practices, hotel performance, moderated mediation model, perceived usefulness, stakeholder demand

Introduction

Sustainability has become a pivotal consideration in organizational decision-making due to its profound impact on both the organization's operations and the external environment.

Corresponding Author: KVA Shantha - kvsha@ou.ac.lk

Submitted: July 16, 2024; Revised: September 26, 2024; Accepted: October 22, 2024

At the organizational level, focusing on sustainability can enhance its competitiveness by building a positive reputation, increasing customer satisfaction, fostering stakeholder engagement, and justifying premium pricing for products and services. For instance, modern consumers are well-informed and environmentally conscious, often favoring products and services that prioritize sustainability (Bui & De Villiers, 2017). In addition, on broader environment scale, rapid urbanization and industrialization have led global sustainability challenges such as resource depletion, climate change, and poverty. This has increased stakeholder pressure on businesses to mitigate their negative impacts on the environment and society (frNCO & Menichini, 2013). In response, there has been a growing emphasis on incorporating environmentally sustainable practices into business operations (European Commission, 2019). These practices, also called as green or environmentally friendly practices, involve actions that encourage more efficient use of resources while limiting their negative impacts on the environment. Accordingly, adopting environmentally sustainable practices not only benefits businesses in terms of their survival and success, but also fulfills their responsibilities to society.

Hotels, also referred to as hospitality businesses, are among the most resource-intensive businesses in the hospitality industry. Due to frequent criticism from government and other stakeholders regarding environmental degradation, hotels are consistently pressured to adopt environmentally sustainable practices, particularly in destinations popular among environmentally conscious customers who prefer for green alternatives (Franco et al., 2020; Guix et al., 2019; Meier & Cassar, 2018). To address this environmental issue, effective environmentally sustainable practices are required to be implemented beyond simple practices such as use of energy efficient lighting and reuse of towels. For instance, investing in renewable energy sources such as solar panels, sustainable sourcing of food and other products, reducing single-use plastics, improving waste management through recycling and composting, and measuring the firm's carbon footprint are some practices to minimize environmental degradation. In addition, engaging in community-based environmental initiatives and educating guests about sustainability can enhance the overall impact of these practices. Such comprehensive practices not only help to mitigate environmental damage but also cater to the growing demand for responsible tourism, which ultimately contributes to the long-term viability and success of the industry.

In the area of environmentally sustainable practices in hospitality businesses, previous studies have extensively investigated the factors affecting the adoption of environmentally sustainable practices and their effects on hotel performance. They reveal that environmentally sustainable practices improve performance (Khalil et al., 2022; Kularatne et al., 2019) and are primarily adopted to comply with regulations, reduce costs, and meet stakeholders' expectations (Acampora et al., 2022). In addition, lack of adequate knowledge and skills, resources limitations, uncertainty of outcomes, organizational culture and absence of top management support/commitment are recognized as factors that hinder the successful adoption of environmentally sustainable practices (Acampora et al., 2022; Madanaguli et al., 2022). However, the existing studies have typically examined these factors in isolation without capturing the complexity of their interactions, which limits the comprehensive understanding of their effects on the adoption of environmentally sustainable practices and hotel performance (Acampora et al., 2022; Langgat et al., 2023). Accordingly, there is a notable gap in the literature regarding the complex interplay among those factors leading to successful adoption of environmentally sustainable practices that enhances performance of hotel businesses. Consequently, the current knowledge is insufficient to fully understand how the interaction of these factors influences the adoption of sustainable practices and thereby, improve hotel performance.

This study aims to address this gap in the literature by providing a comprehensive analysis of factors, with their interconnected effects, driving the adoption of environmentally sustainable practices to enhance performance of hotel businesses. Based on the insights from the Diffusion of Innovation Theory, it posits that perceived usefulness of sustainable practices, top management support, employee engagement, and stakeholder demand are essential factors in this phenomenon. It is argued that the presence of these factors facilitates the successful adoption of environmentally sustainable practices and thereby enhances hotel performance. As a novel attempt, this study conceptualizes these factors within a moderated mediation model to examine this phenomenon.

By investigating this phenomenon, this study makes several significant contributions to the theory and practice. It provides a comprehensive framework that integrates the determinants of sustainable practices, offering a more holistic understanding of how these factors are interconnected to influence the adoption of sustainable practices and their performance outcomes in hotel business. By applying the Diffusion of Innovation Theory, the study also extends the theoretical understanding of how sustainable practices are adopted in the hospitality industry. For practitioners, it offers valuable insights for hotel owners and managers, and policymakers on the importance of managing such factors for the successful adoption of environmentally sustainable practices.

The rest of the paper is structured as follows. It reviews of the existing literature and then proposes hypotheses of the study. Following this, it details the methodology employed for data collection and analysis. Afterwards, the analysis results are presented and discussed. Finally, the paper concludes the study, highlighting its theoretical and practical implications.

Literature Review

The Diffusion of Innovation theory, introduced by Rogers in 1962, predicts that the adoption of an innovation relies on three contextual factors, namely characteristics of the innovation itself, adopting organization and external environment (Kaminski, 2011). Based on this prediction, the Innovation-Organization-Environment (IOE) framework has been developed to provide a comprehensive understanding of this phenomenon. In the context of environmentally sustainable practices, this framework facilitates for a thorough examination of the extent to which these contextual factors shape the adoption of environmentally sustainable practices in enhancing organizational performance.

The literature shows that certain studies, applying the IOE framework, have investigated the factors driving the adoption of environmentally sustainable practices in hospitality businesses. For instance, for sample of 193 Vietnamese hotels, Le et al. (2006) find that innovation characteristics and external environmental factors have strong influence on the intention to adopt environmental sustainability practices. However, organizational characteristics have a weaker influence on the intention to adopt environmental sustainability practices. Further, the study of Laggat et al. (2023) reveals that innovation characteristics (namely, perceived ease of use and perceived usefulness), organizational characteristic (top management support), and environment characteristic (stakeholder demand) have significant positive impact on the adoption of environmental sustainability practices.

To extend the existing knowledge, this study aims to examine the interconnected effects of the contextual factors, suggested by the IOE framework, that drive the adoption of environmentally sustainable practices to enhance the performance of hotel businesses. For this purpose, it introduces a novel approach by conceptualizing these contextual factors within a

moderated mediation model. Figure 1 presents the conceptual model proposed in this study. Based on insights from the Diffusion of Innovation theory and the findings from prior studies that applied the IOE framework, the model incorporates perceived usefulness as an innovation characteristic, employee engagement and top management support as organizational characteristics, and stakeholder demand as an environmental characteristic that determine the successful adoption of environmentally sustainable practices (ESP) to enhance hotel performance. The hypotheses are developed to examine the interconnected effects of these contextual factors on hotel performance, as detailed in the subsequent paragraphs.

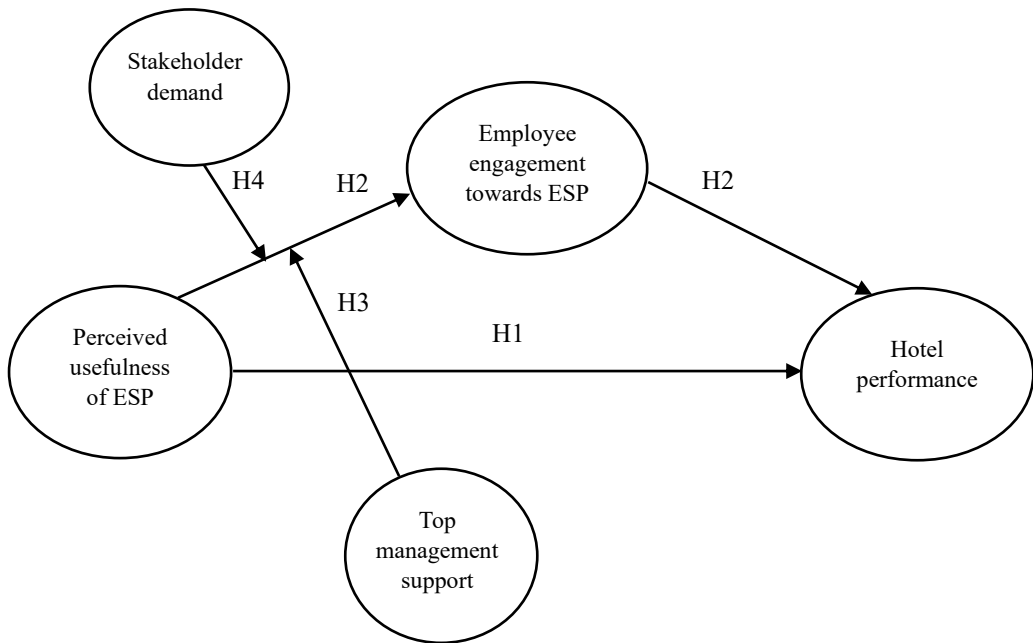


Figure 1: Conceptual Framework

Source: Developed by the researcher based on previous literature (2024)

Perceived Usefulness of ESP

As an innovation characteristic, the adoption of sustainable practices is significantly influenced by their perceived usefulness. Perceived usefulness refers to the benefits that sustainable practices offer over existing methods. When hotel managers and employees recognize the usefulness of such practices, for example in improving operational efficiency and enhancing customer loyalty, they are more likely to adopt them to increase hotel performance. This notion is supported by previous studies in the context of green practices in hotels. For instance, Le et al. (2006) show that perceived usefulness shapes attitudes, which in turn influences the intention to adopt green practices. Further, Laggat et al. (2023), in their survey of 169 hotel managers in Malaysia, find that perceived usefulness positively affects the adoption of sustainable practices, such as support for host communities, waste management, and conservation projects. Accordingly, it can be expected that hotels are more likely to implement sustainable practices when they perceive such practices as useful in enhancing their performance. Thus, perceived usefulness fosters the adoption of ESP to enhance hotel performance, as reflected by the hypothesis H1.

H1: Perceived usefulness of ESP positively affects the hotel performance.

Employee Engagement and Top Management Support towards ESP

Consistent with the Diffusion of Innovation theory, the adoption of environmentally sustainable practices is significantly affected by the characteristics of the organization adopting these practices. As revealed by Langgat et al. (2023), the key organizational characteristics include employee engagement and top management support. Kasim and Ismail (2012), in the context of Malaysian restaurants, explored how employees' involvement and commitment to sustainable practices contribute to more effective resource management and their successful integration into restaurants' operations. According to their findings, employees who support sustainability perceive green practices as useful. As a result, they actively participate in adopting such practices, which consequently enhance organizational performance. Based on these insights, the employee engagement is expected to be a mediator in the effect of perceived usefulness of ESP on hotel performance. Accordingly, the association among perceived usefulness of ESP, employee engagement towards ESP and hotel performance is hypothesized as reflected by the hypotheses H2.

H2: Employee engagement mediates positive effect of perceived usefulness of ESP on hotel performance.

Further, Langgat et al. (2023) find that top management positively impacts the adoption of sustainable practices, such as support for host communities, waste management, and conservation projects, which in turn increase hotel performance. Wang et al. (2020) also show that the attitudes and support of top managers are critical drivers of eco-innovation in hotels, leading to enhanced hotel performance. Their study particularly emphasizes that top management plays a crucial role as decision-makers who can align sustainable practices with the organization's strategic vision, identify and grab environmental opportunities, allocate necessary resources, and foster a culture of sustainability. Accordingly, it can be expected that top managers who support sustainability can successfully integrate environmentally sustainable practices within their organizations by convincing their usefulness and encouraging employee engagement, which consequently promote their broader adoption for improving organizational performance. Conversely, when the support from top management is weak, hotels may perceive such practices as less useful, which consequently results in lower employee engagement towards them. Hence, a lack of top management support would weaken their adaptation and thereby organizational performance. Based on these insights, it can be hypothesized that top management support plays a moderating role in the positive impact of perceived usefulness of ESP on employee engagement towards them, as given by the hypothesis H3.

H3: Top management support moderates the indirect effect of perceived usefulness of ESP on hotel performance through the mediation of employee engagement.

Stakeholder Demand towards ESP

The Diffusion of Innovation theory posits that environmental influences play a critical role in shaping the adoption of innovative practices within an organization. One such fundamental influence is stakeholder expectations. Stakeholders, such as customers and communities, exert significant pressure that can either facilitate or hinder the implementation of environmental practices. Langgat et al. (2023) empirically show how stakeholder demands influence on conservation projects undertaken by hotels. According to their findings, the expectations and preferences of customers and the community influence the adoption of sustainable practices by hotels to enhance their performance. Supporting this view, the study of Kasim and Ismail

(2012) suggests that a notable barrier to the adoption of environmental practices is the relatively low demands from customers and communities. Based on these findings, it can be argued that without sufficient stakeholder demand, hotels may perceive less urgency and useful in implementing sustainable initiatives, which consequently results in lower employee engagement. Accordingly, it is hypothesized that stakeholder demand plays a moderating role in the positive impact of perceived usefulness of ESP on employee engagement towards them, as given by the hypothesis H4.

H4: Stakeholder demand moderates the indirect effect of perceived usefulness of ESP on hotel performance through the mediation of employee engagement.

Research Methodology

This study employs a positivist research philosophy with a quantitative approach. To test the hypotheses, data was gathered from 226 hotel managers in 3 to 5-star rated hotels in the Central, Southern and Western Provinces of Sri Lanka through a self-administered questionnaire. The study's constructs were measured using established literature to ensure the content validity of the questionnaire, as detailed below. Adopting Karagozoglu and Lindell (2000), perceived usefulness was measured with three items. Top management support, employee engagement and stakeholder demands were measured using three items each from Kasim and Ismail (2012). Hotel performance was measured using four items adapted from Cvelbar and Dwyer (2013). Respondents rated their agreement for these items on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire was developed in English and distributed to hotel managers both online and via paper copies delivered to the hotels. Its content validity was further confirmed through a pilot study with a sample of 25 respondents.

Table 1: Assessment of Reliability and Validity of Constructs

| Construct and Indicator Items | Loadings | Cronbach's alpha | Composite Reliability | AVE | VIF |
|-------------------------------|----------|------------------|-----------------------|-------|-------|
| Employee Engagement (EE) | | 0.817 | 0.824 | 0.713 | 2.451 |
| EE_1 | 0.812 | | | | |
| EE_2 | 0.875 | | | | |
| EE_3 | 0.941 | | | | |
| Hotel Performance (HP) | | 0.847 | 0.843 | 0.651 | 2.380 |
| HP_1 | 0.833 | | | | |
| HP_2 | 0.824 | | | | |
| HP_3 | 0.801 | | | | |
| Perceived Usefulness (PU) | | 0.813 | 0.810 | 0.702 | 1.965 |
| PU_1 | 0.934 | | | | |
| PU_2 | 0.871 | | | | |
| PU_3 | 0.865 | | | | |
| Stakeholder Demand (SD) | | 0.723 | 0.716 | 0.644 | 2.336 |
| SD_1 | 0.819 | | | | |
| SD_2 | 0.848 | | | | |
| SD_3 | 0.877 | | | | |

| | | | | |
|------------------------------|-------|-------|-------|-------|
| Top Management Support (TMS) | 0.711 | 0.710 | 0.631 | 2.101 |
| TMS 1 | 0.762 | | | |
| TMS 2 | 0.860 | | | |
| TMS 3 | 0.835 | | | |

Note: All loadings are significant at $p < 0.01$.

Source: Survey Output (2024)

In the data analysis, the reliability and validity for all constructs were first examined to assess their measurement quality. The reliability was ensured with Cronbach's alpha and composite reliability values. As presented in Table 1, Cronbach's alpha and composite reliability values of all constructs are greater than 0.7. The convergent validity was confirmed by factor loadings and average variance extracted (AVE) values. Table 1 shows that factor loadings are above 0.7, which indicates adequate convergent validity. The AVE values are also greater than the acceptable level of 0.5. Employing the Fornell and Larcker criterion, as given in Table 2, the discriminant validity was confirmed. In addition, the variance inflation factor (VIF) values of the constructs are less than the cut-off value of 3.3, which suggest that the common method bias and multicollinearity issue are not present (Kock & Lynn, 2012).

Table 2: Fornell-Larcker Criterion Assessment for Discriminant Validity

| Construct | EE | HP | PU | SD | TMS |
|-----------|--------------|--------------|--------------|--------------|--------------|
| EE | 0.844 | | | | |
| HP | 0.461 | 0.807 | | | |
| PU | 0.237 | 0.377 | 0.838 | | |
| SD | 0.582 | 0.694 | 0.320 | 0.802 | |
| TMS | 0.477 | 0.491 | 0.226 | 0.525 | 0.794 |

Note: This table presents a comparison between each construct's square root of AVE value (as printed in bold in the diagonal) and its correlations with the other constructs for assessing the discriminant validity. A construct's discriminant validity is confirmed when its square root of AVE is larger than its correlation values with other constructs (Fornell & Larcker, 1981).

Source: Survey Output (2024)

Then, the mediation and moderated mediation hypotheses were examined by applying respectively model templates 4 and 9 in the PROCESS procedure developed for SPSS (Hayes, 2018). It estimates the existence of mediation and moderated mediation effects based on the bootstrap confidence intervals at 95% level. The mediation and moderated mediation effects are significant if the confidence intervals do not contain 0.

Results and Interpretations

The results presented in Table 3 show that path given $PU \rightarrow EE$ is significantly positive ($p < 0.01$). Thus, supporting the hypothesis H1, it suggests that perceived usefulness of ESP has positive effect on employee engagement. The results also indicate that stakeholder demand and top management support have positive effects on employee engagement, as reflected by significant coefficients of the paths $SD \rightarrow EE$ and $TMS \rightarrow EE$ respectively ($p < 0.01$). When concerning about the moderating effects, the significant coefficient of the path $SD \times PU \rightarrow EE$ reveals that stakeholder demand moderates the positive effect of perceived

usefulness on employee engagement. However, the moderating effect of top management support appears to be absent since the coefficient of the path TMS×PU→EE is insignificant.

Table 3: Basic Regression Results

| Path | Coefficient | t-statistic | p-value |
|--|-------------|-------------|---------|
| PU→EE | 0.226** | 3.647 | 0.000 |
| PU→HP | 0.251** | 4.878 | 0.000 |
| EE→HP | 0.364** | 6.766 | 0.000 |
| SD→EE | 0.507** | 7.537 | 0.000 |
| TMS→EE | 0.246** | 4.051 | 0.000 |
| SD×PU→EE | 0.164* | 2.486 | 0.014 |
| TMS×PU→EE | -0.011 | -0.149 | 0.882 |
| EE: $R^2 = 0.402$, F statistic = 29.547 | | | |
| HP: $R^2 = 0.288$, F statistic = 45.131 | | | |

Note: ** and * indicate the significance at 1 percent level and 5 percent level respectively.

Source: Survey Output (2024)

Mediating Effect of Employee Engagement

The results relating to the mediation analysis are presented in Table 4. Supporting the hypothesis H2, it shows that the indirect effect of PU on HP through EE (as indicated by the path PU→EE→HP) is significantly positive ($p < 0.01$), indicating that perceived usefulness of ESP enhances hotel performance through the mediation of employee engagement. Since the direct effect of PU on HP is also significant ($p < 0.01$), employee engagement has a partial mediation on the effect of the perceived usefulness on hotel performance (Zhao et al., 2010). Thus, extending the literature on environmentally sustainable practices in hotels, these results suggest that employee engagement plays a mediating role in adopting environmentally sustainable practices to enhance hotel performance. The partial mediation effect indicates that the positive effect of environmentally sustainable practices on hotel performance is facilitated by the presence of employee engagement towards such practices.

Table 4: Mediation Analysis Results

| Path | Total effect | Direct effect | Indirect effect | | | t-statistic |
|----------|--------------|---------------|-----------------|-------|-------|-------------|
| | | | Effect | LLCI | ULCI | |
| PU→EE→HP | 0.334** | 0.251** | 0.082** | 0.037 | 0.145 | 3.037 |

Note: This table presents the results relating to the tests of hypothesis H2. ** and * indicate the significance at 1 percent level and 5 percent level respectively. The confidence intervals at lower level (LLCI) and upper level (ULCI) are given at 95%. The number of bootstrap samples is 5,000.

Source: Survey Output (2024)

Mediating effect of Employee Engagement Conditional on Stakeholder Demand and Top Management Support

Table 5 presents the conditional mediation analysis results for testing hypotheses H3 and H4. These results enable to examine whether stakeholder demand and top management support moderate the indirect effects of perceived usefulness of ESP on hotel performance through employee engagement. In other words, it can be determined whether the indirect effect is conditional on stakeholder demand and top management support. With respect to the indirect effect conditional on stakeholder demand, as shown in Panel A, the index of moderated mediation is statistically significant at the 5 percent level, which therefore supports hypothesis H4. This indicates that stakeholder demand moderates the indirect effect of perceived usefulness of ESP on hotel performance through employee engagement.

Following the approach suggested by Aiken and West (1991), this conditional mediation effect can be further examined at lower (M -1 std), mean (M), and higher (M +1 std) levels of stakeholder demand. As shown in Panel A of Table 5. The results indicate that the indirect effect is significantly positive only at the higher level of stakeholder demand ($p < 0.05$). This suggests that the indirect effect is moderated only at the higher level of stakeholder demand, with no moderation present at the mean or lower levels. This finding indicates that when stakeholders' concern and demand for ESP are high, hotels perceive ESP as more useful, leading to higher employee engagement in implementing these practices. Conversely, the insignificant effect at the lower level of stakeholder demand suggests that without sufficient stakeholder pressure, hotels perceive less urgency and usefulness in adopting sustainable initiatives, which results in lower employee engagement towards such practices. Therefore, it can be inferred that increased stakeholder demand can inflate the positive impact of the perceived usefulness of ESP on employee engagement towards such practices.

Table 5: Conditional Mediation Analysis Results

| | Effect | Standard error | 95% Confidence Interval | | t-statistic |
|---|--------|----------------|-------------------------|-------|-------------|
| | | | LL | UL | |
| Panel A: Indirect effect of PU on HP through EE conditional on SD | | | | | |
| Index of moderated mediation | 0.060* | 0.027 | 0.008 | 0.114 | 2.222 |
| Lower level (M -1 std) of SD | -0.053 | 0.034 | -0.126 | 0.009 | -1.559 |
| Mean level (M) of SD | 0.005 | 0.019 | -0.033 | 0.044 | 0.263 |
| Higher level (M +1 std) of SD | 0.062* | 0.031 | 0.004 | 0.128 | 2.000 |
| Panel B: Indirect effect of PU on HP through EE conditional on TMS | | | | | |
| Index of moderated mediation | -0.004 | 0.031 | -0.058 | 0.065 | -0.129 |
| Lower level (M -1 std) of TMS | 0.009 | 0.034 | -0.063 | 0.072 | 0.265 |
| Mean level (M) of TMS | 0.005 | 0.019 | -0.033 | 0.044 | 0.263 |
| Higher level (M +1 std) of TMS | 0.001 | 0.039 | -0.067 | 0.088 | 0.026 |

Note: This table presents the results relating to the indirect effects of perceived usefulness (PU) of ESP on hotel performance (HP) through the mediation of employee engagement (EE) conditional on stakeholder engagement (SE) and top management support (TMS), as hypothesized by H3 and H4. ** and * indicate the significance at 1 percent level and 5 percent level respectively. "std" denotes standard deviation. The number of bootstrap samples is 5,000.

Source: Survey Output (2024)

However, a similar pattern cannot be observed in Panel B of Table 5 which presents the results relating to the indirect effect conditional on top management support. The index of moderated mediation is statistically insignificant ($p > 0.05$). The indirect effects at lower, mean, and higher levels of top management support are also insignificant ($p > 0.05$). Thus, the results do not provide support for the hypothesis H3, indicating that top management support does not moderate the indirect effect of perceived usefulness of ESP on hotel performance through employee engagement.

Conclusion and Recommendation

This study aims to examine the interconnected effects of contextual factors, as suggested by the IOE framework, driving the adoption of environmentally sustainable practices to enhance hotel performance. For this purpose, it introduces a novel approach by hypothesizing these contextual factors within a moderated mediation conceptual model. Data were collected from 226 managers of 3- to 5-star-rated hotels and analyzed using the PROCESS procedure for SPSS. Extending the literature on environmentally sustainable practices in hotels, the results indicate that employee engagement partially mediates the effect of perceived usefulness of adopting environmentally sustainable practices on hotel performance. This partial mediation suggests that the positive impact of adopting environmentally sustainable practices on hotel performance is facilitated by the presence of employee engagement in such practices. Further, this study found support for the role of stakeholder demand in boosting the potential positive impact of environmentally sustainable practices on hotel performance. The results imply that higher stakeholder demand can inflate the positive impact of the perceived usefulness of environmentally sustainable practices on employee engagement them. Accordingly, this study concludes that the interconnected effects of perceived usefulness, stakeholder demand and employee engagement towards adopting environmentally sustainable practices determine their successful adoption to enhance hotel performance. These findings offer theoretical support for the application of IOE framework to examine the factors driving the adoption of environmentally sustainable practices in hotels and their impact on hotel performance. Extending the literature, it shows that the IOE factors, namely perceived usefulness of environmentally sustainable practices, employee engagement and stakeholder demand towards them are inter-connectedly associated in driving the adoption of environmentally sustainable practices in hotels.

This study provides the following practical implications to hotel owners and managers, and policymakers to enhance the effective adoption of environmentally sustainable practices. First, since fostering employee engagement is crucial, hotel owners and managers should invest in comprehensive training programs to educate employees about the benefits of environmentally sustainable practices so that a knowledgeable and committed workforce can be created, fostering their engagement towards such practices. In addition, implementing reward systems to recognize and incentivize employees who actively engage in sustainability initiatives can boost their morale and participation. Employees should also be encouraged to get involved in the planning and execution of sustainability practices, which leads to their

higher engagement in these practices. Second, for enhancing the perceived usefulness of environmentally sustainable practices, employees should be effectively communicated with the tangible as well as intangible benefits of these practices, such as cost savings, improved hotel reputation, and increased customer satisfaction. The perceived usefulness can be further improved by emphasizing successful case studies within the organization or from the industry.

Third, since stakeholder demand can significantly boost the adoption of sustainable practices, hotels should actively engage with stakeholders to understand their sustainability expectations and incorporate their feedback into hotel operations. Stakeholder awareness and demand can also be increased by promoting the hotel's sustainability efforts through various channels, which consequently enhances the adoption of sustainable practices. Fourth, policymakers can create regulations and incentives that encourage hotels to adopt environmentally sustainable practices, such as tax benefits, grants, or recognition programs for sustainable businesses. For this purpose, clear guidelines and standards for environmental sustainability should be developed, which can provide a roadmap for hotels to follow to ensure consistency and quality in their sustainability efforts. Further, government and industry bodies can run public awareness campaigns to educate consumers about the importance of sustainability in the hospitality sector for increasing stakeholder demand and support. By focusing on these areas, hotel owners and managers, and policymakers can effectively promote the adoption of environmentally sustainable practices, which not only enhances hotel performance, but also contributes to achieving Sustainable Development Goals (SDGs).

References

- Acampora, A., Lucchetti, M. C., Merli, R., & Ali, F. (2022). The theoretical development and research methodology in green hotels research: A systematic literature review. *Journal of Hospitality and Tourism Management*, 51, 512-528.
- Aiken, L. S., West, S. G., & Reno, R. R. (1991). *Multiple regression: Testing and interpreting interactions*. sage.
- Bui, B., & De Villiers, C. (2017). Business strategies and management accounting in response to climate change risk exposure and regulatory uncertainty. *The British Accounting Review*, 49(1), 4-24.
- Costa, R., & Menichini, T. (2013). A multidimensional approach for CSR assessment: The importance of the stakeholder perception. *Expert systems with applications*, 40(1), 150-161.
- Cvelbar, L. K., & Dwyer, L. (2013). An importance–performance analysis of sustainability factors for long-term strategy planning in Slovenian hotels. *Journal of sustainable tourism*, 21(3), 487-504.
- European Commission. (2019). *Guidelines on non-financial reporting: supplement on reporting climate related information*. Retrieved from [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52019XC0620\(01\)&from=EN](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52019XC0620(01)&from=EN)
- Fornell, C. & Larcker, D.F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of marketing research*, 382-388.
- Franco, S., Caroli, M. G., Cappa, F., & Del Chiappa, G. (2020). Are you good enough? CSR, quality management and corporate financial performance in the hospitality industry. *International Journal of Hospitality Management*, 88, 102395.

- Guix, M., Font, X., & Bonilla-Priego, M. J. (2019). Materiality: stakeholder accountability choices in hotels' sustainability reports. *International Journal of Contemporary Hospitality Management*, 31(6), 2321-2338.
- Hayes, A. F. (2018). Partial, conditional, and moderated mediation: Quantification, inference, and interpretation. *Communication monographs*, 85(1), 4-40.
- Kaminski, J. (2011). Diffusion of innovation theory. *Canadian Journal of Nursing Informatics*, 6(2), 1-6.
- Karagozoglu, N., & Lindell, M. (2000). Environmental management: testing the win-win model. *Journal of Environmental Planning and Management*, 43(6), 817-829.
- Kasim, A., & Ismail, A. (2012). Environmentally friendly practices among restaurants: Drivers and barriers to change. *Journal of Sustainable Tourism*, 20(4), 551-570.
- Khalil, N., Abdullah, S. N. C., Haron, S. N., & Hamid, M. Y. (2022). A review of green practices and initiatives from stakeholder's perspectives towards sustainable hotel operations and performance impact. *Journal of Facilities Management*, (ahead-of-print).
- Kock, N., & Lynn, G. (2012). Lateral collinearity and misleading results in variance-based SEM: An illustration and recommendations. *Journal of the Association for information Systems*, 13(7).
- Kularatne, T., Wilson, C., Månsson, J., Hoang, V., & Lee, B. (2019). Do environmentally sustainable practices make hotels more efficient? A study of major hotels in Sri Lanka. *Tourism Management*, 71, 213-225.
- Langgat, J., Ramdani, B., Pavic, S., & Tok, E. (2023). Environmentally sustainable practices and hotel performance: Evidence from Malaysia. *Sustainability*, 15(6), 5289.
- Le, Y., Hollenhorst, S., Harris, C., McLaughlin, W., & Shook, S. (2006). Environmental management: A study of Vietnamese hotels. *Annals of Tourism Research*, 33(2), 545-567.
- Madanaguli, A., Dhir, A., Kaur, P., Srivastava, S., & Singh, G. (2022). Environmental sustainability in restaurants. A systematic review and future research agenda on restaurant adoption of green practices. *Scandinavian Journal of Hospitality and Tourism*, 22(4-5), 303-330.
- Meier, S., & Cassar, L. (2018). Stop talking about how CSR helps your bottom line. *Harvard Business Review*, 31.
- Wang, Y., Font, X., & Liu, J. (2020). Antecedents, mediation effects and outcomes of hotel eco-innovation practice. *International Journal of Hospitality Management*, 85, 102345.
- Zhao, X., Lynch, J.G. & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and Truths about Mediation Analysis. *Journal of Consumer Research*, 37(3), 197-206.