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The Role of Green Intellectual Capital in Green Innovation: A Study of Green Hospitality in the New Capital City of Indonesia

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Abstract

Green innovation plays a crucial role in supporting the concept of green hospitality by providing sustainable solutions that improve operational efficiency, reduce environmental impact, and strengthen the competitiveness of the hospitality industry. Although numerous studies have been conducted on green innovation, limited research has been conducted within the context of the hospitality industry, particularly involving the antecedents of green intellectual capital. Therefore, this study aims to explore the role of green intellectual capital, encompassing green human capital, green structural capital, and green relational capital, in fostering green innovation within the hospitality industry in the New Capital City of Indonesian. The study involved 200 hotel employees at three hotels until five-star hotels in the New Capital City of Indonesian. Data analysis was conducted using SEM with the assistance of SmartPLS version 3.0. The findings of this study revealed that green structural capital and green relational capital have a positive effect on increasing green innovation. Meanwhile, green human capital does not affect the increase in green innovation. The results of this study have significant implications for hospitality practitioners, policymakers, and academics in the field of sustainable green hospitality.

Keywords: green hospitality; green innovation; green human capital; green structural capital; green relational capital

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Introduction

The global tourism industry currently faces significant challenges in managing the environmental impacts generated by tourism activities, particularly in the hospitality sector, a key element of destination infrastructure. Energy use, air quality, and waste management are key issues requiring sustainable solutions. Therefore, the concept of green hospitality has emerged as a strategic approach to integrating environmentally friendly practices into the management of tourist destinations and accommodations, while simultaneously increasing the competitiveness of this industry. According to Gürlek & Koseoglu (2021), green hospitality not only plays a role in environmental conservation but also serves as a tool to improve hotel performance and financial performance through innovations focused on sustainability. The concept of green hospitality is a key strategy for addressing intense competition in the hotel industry while also meeting the demands of environmental sustainability. One key factor determining hotel competitiveness in the modern era is green innovation. Green innovation encompasses the development of products and processes that aim to reduce energy use, minimise pollution, recycle waste, and utilise resources sustainably. In the hotel industry, the implementation of green innovation has been proven to improve hotel sustainability performance, both from an environmental and economic perspective. Steps such as utilizing renewable energy, implementing effective waste management, and employing environmentally friendly building design have a positive impact on operational efficiency and cost reduction. Furthermore, green innovation also increases the attractiveness of hotels to environmentally conscious consumers, strengthens brand reputation, and enables hotels to charge higher prices. This is supported by research by Yu et al. (2021), which shows that green innovation in the hotel sector significantly contributes to the formation of a positive brand image and the achievement of long-term business profits. The successful implementation of green innovation in the hospitality industry depends heavily on the quality of human resources and the level of knowledge possessed by the organisation. In this context, green intellectual capital (GIC) serves as the primary foundation for creating environmentally friendly innovations. GIC encompasses aspects of knowledge, skills, experience, and organisational culture that encourage environmentally sound practices (Shahzad et al., 2023). Research by Shahzad et al. (2023) demonstrated that GIC has a significant positive impact on hotel sustainability performance, both directly and through its mediating role in the green innovation process. Meanwhile, green intellectual capital consists of three main components: green human capital, green structural capital, and green relational capital. Green human capital encompasses the competencies, knowledge, and environmental awareness of employees, reflecting their commitment to sustainability and environmental responsibility. Green structural capital encompasses systems, processes, and infrastructure that support environmentally friendly practices within the organisation. Meanwhile, green relational capital focuses on external relationships with stakeholders that support sustainability efforts. These three components work synergistically to encourage the realisation of green innovation in the hotel environment (Shazali et al., 2023).

From a resource-based perspective (RBV), green intellectual capital is considered a unique and difficult-to-imitate strategic asset, providing a sustainable competitive advantage for hotels (Shazali et al., 2023). Effective GIC management enables hotels to create green innovations that not only provide environmental benefits but also enhance the company's reputation and profitability. Enhancing green innovation through strengthening green intellectual capital (GIC) is crucial as consumer preferences become increasingly concerned about environmental issues. Today, modern consumers tend to choose hotels that adopt environmentally friendly practices as part of their social and environmental responsibility. This situation presents both an opportunity and a challenge for hotels in Balikpapan to increase their competitiveness through green innovation based on effective GIC management (Asadi et al., 2020). Balikpapan City, as a major tourist destination in East Kalimantan, has excellent potential to become a pioneer in implementing the green hospitality concept. With the rapid growth of the hotel industry in the region, the need for innovative environmental management strategies is becoming increasingly crucial. Combining green innovation with green intellectual capital can be a practical strategic approach to address environmental challenges while improving hotel business performance in Balikpapan. Based on the reviewed literature, it is concluded that green innovation plays a crucial role in supporting sustainable hospitality. Although numerous studies on green innovation have been conducted, limited research has been conducted in the context of the hospitality industry, particularly involving the antecedent factors of green intellectual capital. Therefore, this study aims to explore the role of green intellectual capital, namely green human capital, green structural capital, and green relational capital, on green innovation in the Balikpapan hospitality industry. This study focuses on analysing the measurement models of green human capital, green relational capital, and green innovation. Furthermore, this study also analyses the influence of green human capital, green structural capital, and green relational capital on green innovation in the hospitality industry in the New Capital City of Indonesia. The findings of this study will provide a valuable contribution to the tourism literature, particularly in the hospitality sector, by shedding light on the factors that influence the strengthening of green innovation intentions. Additionally, this will aid researchers, policymakers, tourism entrepreneurs, and hotel managers in developing and implementing sustainable green hospitality practices.

Materials and methods

This study involved 200 hotel employees from three-star hotels (50%), four-star hotels (28.6%), and five-star hotels (21.4%) in the New Capital City of Indonesia. This population selection was based on the representation of the hotel sector, which has the potential and application of green intellectual capital and green innovation. Most respondents based on gender were dominated by male employees (122 employees), and the rest were female employees (78 employees). Meanwhile, based on age categories, the distribution is as follows: 20-25 years (23%), 26-30 years (28.5%), 31-40 years (32.5%), 41-45 years (9%), and over 45 years (7%). In the category of work period <1 year (26.5%), 1-5 years (48.5%), and >5 years (25%). Based on the category of the last level of education, the results are as follows: high school/vocational school (59.5%), Diploma/S1 (40%), and Master's (0.5%). The perceptions of hotel employees regarding the green hospitality concept, encompassing green human capital, green structural capital, and green relational capital, were collected through a self-report questionnaire. In this questionnaire, respondents provided their perceptions independently through a questionnaire administered directly to them. The data collection process took approximately 10 minutes to complete. The data collection process took two months, from June 2025 to August 2025. We employed the assistance of enumerators to distribute the questionnaires directly to hotel employees.

The perceptions of hotel employees regarding green human capital were collected using a questionnaire developed and adapted from previous studies by Xin & Wang (2023) and Haldorai et al. (2022). This questionnaire consists of seven items, for instance, "I try to be productively involved in implementing environmentally friendly hotels at the hotel where I work." Furthermore, perceptions regarding green structural capital have been referenced in previous studies by Xin & Wang (2023) and Haldorai et al. (2022). There are five items to measure green structural capital (e.g., "I work in a hotel that implements a well-structured environmentally friendly hotel management system"). Also, the hotel employees perceptions of green relational capital have been explored in previous studies that have been adapted and developed (Haldorai et al., 2022; Xin & Wang, 2023). There are four items to measure green relational capital (for example, "I feel that our hotel provides environmentally friendly hotel facilities and services that are in line with guest desires"). This questionnaire uses a 5-point Likert scale with the following response options: strongly agree (5), agree (4), neutral (3), somewhat disagree (2), and disagree (1). Meanwhile, green innovation perceptions were developed based on previous studies, using a questionnaire adapted from Xin & Wang (2023) and Haldorai et al. (2022). Six items were used to measure green innovation (e.g., "I feel our hotel has increased the use of environmentally friendly packaging for our hotel products"). This questionnaire used a five-point Likert scale with response ranges: strongly agree (5), agree (4), neutral (3), somewhat disagree (2), and disagree (1).

The data analysis in this study employed structural equation modelling (SEM), which enables the testing of relationships between constructs of both exogenous and endogenous variables while accounting for measurement error (Bollen, 1989). The SEM analysis used was based on Partial Least Squares (PLS). PLS is very well used for multivariate data analysis in the areas of management and strategy (Valaei, 2017). The advantages of using PLS are that the data does not have to be normally distributed, it can be used for analysis on variables with reflective or formative indicators, and it can be used to analyse relationships between variables with small sample sizes (Ghozali, 2014; Hair et al., 2010). This analysis uses SmartPLS 3.0 software. Partial Least Squares (PLS) is a variance-based structural equation modelling (SEM) analysis that simultaneously tests both the measurement model and the structural model (Hartono & Abdillah, 2009). The Outer Model (measurement model) in PLS-SEM analysis serves to explain the role of indicators in the formation of latent variables. Testing the measurement model uses loading factor parameters and Average Variance Extracted (AVE) values. The criteria used are a loading factor parameter value of more than 0.7 and an AVE value of more than 0.5 (Ghozali & Fuad, 2008). The minimum criteria that can be used to determine the fit of a structural model in PLS-SEM use the reference NFI > 0.800 and SRMR < 0.080.

Result

This study aims to analyze and identify strategies that the hotel industry can implement in strengthening competitive advantage through the application of the green hospitality concept by emphasizing the importance of the role of green innovation and green intellectual capital which includes green human capital, green structural capital, and green relational capital obtained from printed questionnaires so that respondents provide their perceptions independently through questionnaires that are given directly. The data obtained were analyzed using the SmartPLS-SEM program. Based on the PLS-SEM diagram test, the PLS-SEM diagram is obtained in Figure 1.

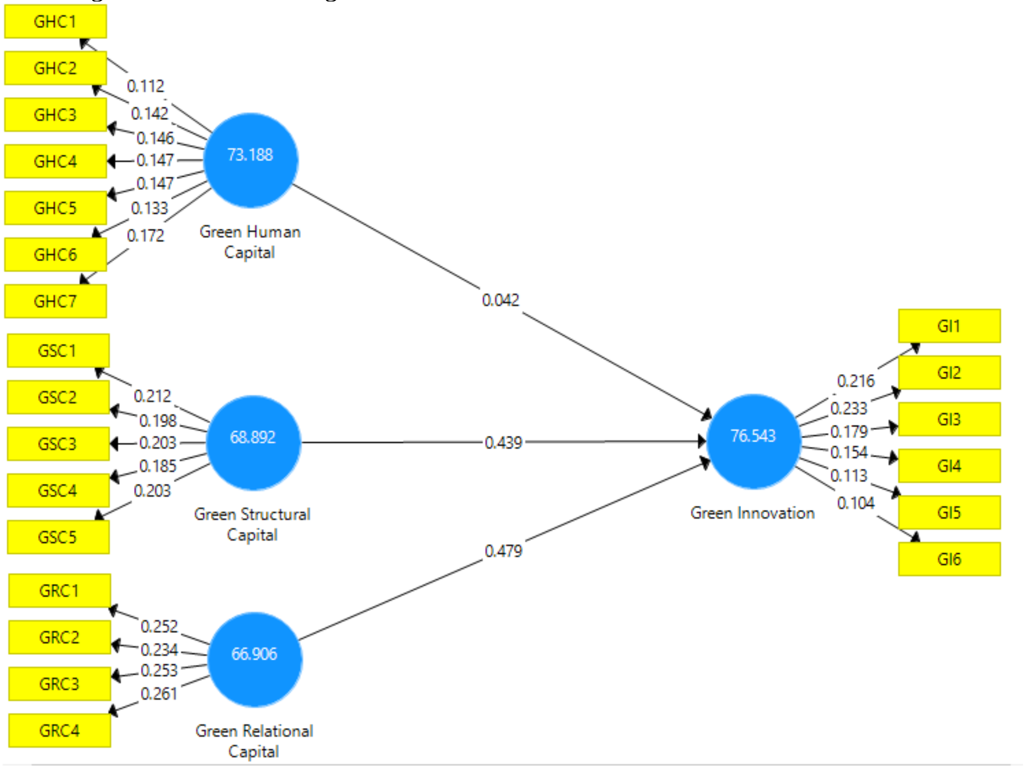

Figure 1. Data processing results using SmartPLS

The results of the first stage of data processing showed that all questionnaire items for each variable were valid. Next, a gradual evaluation phase was conducted, which included an analysis of both the outer and inner models.

Outer model analysis

The outer model evaluation is evaluated by examining the validity and reliability values of the model's measurements. Validity measurement in this study is done by examining the loading factor value of each indicator against the latent variable being measured. Indicators with a loading factor greater than 0.7 indicate good convergent validity and can adequately measure the latent variable, thus ensuring that the study instrument accurately reflects the construct being measured. Furthermore, validity can also be tested by comparing the correlation between item scores and construct scores (convergent validity). Even if the loading factor value is < 0.7, the indicator can still be considered valid if the AVE (Average Variance Extracted) is > 0.5 (Rosalyn, 2023; Yarsasi & Tahyudin, 2025). The validity values of each item in the study variables are presented in Table 1.

Table 1. Validity test results

Items	Green Human Capital	Green Innovation	Green Relational Capital	Green Structural Capital
GHC1	0.753			
GHC2	0.828			
GHC3	0.781			
GHC4	0.801			
GHC5	0.768			
GHC6	0.755			
GHC7	0.785			
GI1		0.769		
GI2		0.846		
GI3		0.836		
GI4		0.817		
GI5		0.754		
GI6		0.711		
GRC1			0.794	
GRC2			0.828	
GRC3			0.845	
GRC4			0.793	

GSC1	0.860
GSC2	0.881
GSC3	0.845
GSC4	0.815
GSC5	0.826

Referring to Table 1, it can be seen that all items or indicators (Green Human Capital (GHC), Green Innovation (GI), Green Relational Capital (GRC), and Green Structural Capital (GSC)) have an outer loading value > 0.7, which indicates good indicator validity, stating a loading value of at least 0.7 as an indication of adequate validity. Furthermore, all items are deemed suitable and valid for use in this study and can be utilised for further analysis. Meanwhile, reliability measures the internal consistency of an instrument which can be seen from the Cronbach's Alpha, Composite Reliability, and rho_A values, where Cronbach's Alpha and Composite Reliability values above 0.7 indicate that the construct has good reliability, meaning that respondents provide consistent answers; in addition, the Average Variance Extracted (AVE) exceeding 0.5 also confirms the convergent reliability of the variable construct, so that the questionnaire can be trusted to produce valid and reliable data in research (Fajar et al., 2024; Yarsasi & Tahyudin, 2025). The composite reliability values obtained for each variable in this study are presented in Table 2.

Table 2. Reliability test results

Variable	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Green Human Capital	0.894	0.9	0.917	0.611
Green Innovation	0.88	0.89	0.909	0.625
Green Relational Capital	0.832	0.832	0.888	0.665
Green Structural Capital	0.9	0.902	0.926	0.715

Table 2 show that the results of the reliability test, which was conducted using Cronbach's Alpha, rho_A, Composite Reliability, and Average Variance Extracted (AVE). All main variables had Cronbach's Alpha values greater than 0.8, composite reliability greater than 0.9, and AVE greater than 0.6, indicating good internal consistency and adequate convergent validity. These results demonstrate that the measurement tool used in this study is reliable for measuring the variables under investigation.

Hypothesis testing

Study data were collected using a self-report questionnaire. In this questionnaire, respondents independently provided their perceptions through a questionnaire administered directly to them, which was then processed using the SmartPLS-SEM software program. After the outer model or measurement model analysis was completed, the next stage was hypothesis testing. Furthermore, path analysis in PLS-SEM was conducted through an inner model evaluation, also known as a structural model test, to examine the direct and indirect influences between variables. Inner model evaluation in PLS-SEM includes checking the model's fit and testing the resulting path coefficients.

Goodness of fit test (GOF)

Model fit testing must be conducted before hypothesis testing to ensure that the model meets the standards of goodness of fit. This model is assessed through several indicators, such as SRMR (Standardised Root Mean Square Residual), which ideally should be less than 0.08; d_ULS and d_G values, which indicate model suitability; and the NFI (Normed Fit Index) index, whose value closer to 1 indicates a better model fit. This model indicates that the overall model structure aligns with the empirical data, making it suitable for hypothesis testing. Evaluation of the inner model can also be conducted by examining the R-squared value for the endogenous construct as a measure of predictive power. Significance testing is performed using t-statistics, which compare the calculated t-value with the t-table at a specified significance level (Yarsasi & Tahyudin, 2025). Based on the results of the model fit test using SmartPLS-SEM, the NFI and SRMR values met the standards as shown in Table 3.

Table 3. Goodness of fit model standards

Item	Saturated Model	Estimated Model
d_ULS	1.606	1.606
d_G	0.755	0.755
SRMR	0.08	0.08
NFI	0.765	0.765
Chi-Square	773.784	773.784

Path coefficient test

The final stage in PLS-SEM analysis is inner model testing. Inner model evaluation, also known as structural model testing, is used to identify direct and indirect influences between variables. Based on the direct effect path coefficients shown in Table 4, the PLS-SEM analysis yields the results of the direct influence test between the independent and dependent variables.

Table 4. Direct influence between research variables

Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
GHC -> GI	0.033	0.034	0.055	0.603	0.546
GRC -> GI	0.407	0.416	0.095	4.3	0.000
GSC -> GI	0.404	0.396	0.108	3.734	0.000

Information: GHC= Green Human Capital; GRC= Green Relational Capital; GSC= Green Structural Capital; GI= Green Innovation

Table 4 shows that the direct paths from green relational capital to green innovation (p = 0.000; t = 4.3). Also, green structural capital significantly have direct effect on green innovation (p = 0.000; t = 3.734), where all paths with t-statistics above 1.96 and p-value below 0.05 indicate that there is a significant influence between the independent and dependent variables, namely green relational capital and green structural capital on green innovation, indicating a strong positive influence. Conversely, the path from green human capital to green innovation has not had a direct and significant impact on green innovation in this context (p = 0.546, t = 0.603).

Discussion

Green innovation in the context of green hospitality refers to innovation policies that focus on creating new products, processes, or methods aimed at reducing negative environmental impacts and increasing resource efficiency within the hospitality industry. This environmentally conscious innovation is crucial in addressing the increasingly pressing environmental challenges and climate crisis, while also providing hotels that adopt it with competitive added value (Sáez-Martínez et al., 2016). This study investigates predictors of green innovation, including green human capital, green structural capital, and green relational capital. The three independent variables (green human capital, green structural capital, and green relational capital) are included in green intellectual capital, which plays a crucial role in shaping the concept of green hospitality. One of the study's findings revealed that green human capital (GHC) has no significant direct influence on green innovation (GI) among hotel employees. This finding contradicts the study of Mochklas et al. (2024), which highlighted the important role of GHC in strengthening GI in the hotel sector with the journal title "The Impact of Green Human Capital on Hotel Performance: The Mediating Role of Innovation Activity in Yogyakarta, Indonesia". This study found that green human capital has a significant positive impact on innovation activities and business performance in the hotel industry. Innovation serves as a mediator between green human capital and business performance, underscoring the significance of green human capital in driving innovation and achieving sustainable business outcomes in the hotel sector. Furthermore, this study builds upon the previous study by Nawangsari et al. (2025), entitled "From Knowledge to Action: Exploring Green Intellectual Capital's Role in Sustainable Organizational Performance for Millennials." This study reveals that green human capital and green relational capital do not have a direct impact on sustainable organisational performance; instead, their influence is mediated by green innovation behaviour. This means that green human capital can only influence sustainable performance if it first encourages green innovation. Theoretically, green innovation among hotel employees can be formed through strengthening GHC related to knowledge and skills in environmentally friendly practices; other factors, such as organisational culture or structural support, may play a greater role in the success of green innovation. Some studies suggest that investment in GHC training and development can improve employees' ability to create green innovations. However, in specific contexts, such as hotels, this influence may be indirect or require the role of other mediators, including leadership or managerial support (Mochklas et al., 2024). Furthermore, the insignificant effect of GHC on GI may also be due to the suboptimal and inconsistent implementation of green human resource management practices within the hotel environment. As a result, environmental knowledge and skills cannot be effectively translated into tangible innovations. Other studies have shown that the success of green innovation is highly dependent on organisational commitment and the integration of GHC with structural and relational support (Clara Dewanti et al., 2025). Although green human capital (GHC) theoretically plays a crucial role, its influence on green innovation may be affected by the nature of the hotel industry, which relies heavily on service and customer interactions, where external factors and collaboration among various parties have a greater influence on innovation. Thus, GHC alone may not be sufficient as a key factor in driving green innovation without collaboration with other elements.

The results of this study indicate that green structural capital (GSC) has a significant direct influence on green innovation (GI) among hotel employees. Green structural capital (GSC) plays a crucial role in driving green innovation in the hospitality sector because it encompasses infrastructure, systems, processes, and procedures that facilitate the creation and application of green knowledge. Organizational infrastructure that supports environmentally friendly practices, such as green technology and a robust environmental management system, provides the foundation for employees to generate innovative ideas aligned with sustainability goals. Studies show that hotels with strong GSC are able to enhance their green innovation capabilities through the integration of systems and technologies that support operational efficiency and significantly reduce environmental impacts (Firmansyah, 2019; Karyanti & Murwaningsari, 2023). The GSC also encourages the development of an organisational culture that fosters green innovation. Well-organised work systems and collaboration mechanisms between departments or business units, often overlooked, are crucial factors in driving environmental innovation. With clear standard operating procedures, integrated workflows, and the use of information technology to improve green efficiency, employees find it easier to implement innovative ideas focused on sustainability. This aligns with the view that the GSC, as structural capital, not only stores knowledge but also connects various resources to ensure synergy between green innovations (Firmansyah, 2019; Mochklas et al., 2024). Support from a GSC facilitates organisations' adaptation to external changes, such as environmental regulations and increasing market demand for environmentally friendly products and services. With an adequate GSC, hotels can respond more quickly to opportunities and challenges in the sustainable industry by developing relevant innovations in products, services, and business processes. This not only enhances hotel competitiveness but also contributes to broader environmental sustainability. Research in the hospitality sector shows that investing in an environmentally focused GSC not only forms the basis for green innovation but also provides a strategic advantage in a competitive market (Firmansyah, 2019; Karyanti & Murwaningsari, 2023; Mochklas et al., 2024).

The results of this study indicate that green relational capital (GRC) has a significant direct influence on green innovation (GI) among hotel employees. The positive influence of green relational capital (GRC) on green innovation (GI) indicates that external relationships with customers, suppliers, and other environmentally conscious stakeholders play a crucial role in driving green innovation in hotels. GRC enables organisations to gain access to crucial external resources, knowledge, and support for developing new, environmentally friendly products and services (Sihombing & Murwaningsari, 2022). Good relationships with business partners and the environmental community can also spark innovative collaborations that accelerate the adoption of sustainable technologies and practices, and provide incentives to continue innovating to meet increasingly demanding market expectations for sustainability (Clara Dewanti et al., 2025). GRC builds trust and positive communication, enabling faster adoption and dissemination of green ideas. GRC not only enhances internal innovation but also helps hotels build a strong green image and reputation, which in turn can stimulate employees to continue innovating to maintain the sustainability of these external relationships. Therefore, strengthening GRC is a crucial strategy for driving sustainable green innovation in the hospitality industry.

Conclusion

The results of this study demonstrate that GSC and GRC have a direct and significant influence on green innovation. Meanwhile, GHC has no significant influence on GI among hotel employees. These results highlight the significance of structural aspects and external relationships in driving sustainability-oriented innovation within the hotel industry. Infrastructure, systems, and processes that support environmentally friendly practices, as well as collaboration and networking with external stakeholders, are key drivers of green innovation in the hotel environment. While employee green knowledge and skills are important, the success of green innovation is more determined by the organisation's structural support and external relationships that facilitate the effective implementation of green concepts. In other words, GHC may require intermediary factors or a conducive environment to make significant contributions to green innovation. Furthermore, these findings suggest that hotels should develop and strengthen their structural and relational capabilities as a key strategy for managing green innovation. Management should focus on building systems and networks that facilitate adaptation to environmental and regulatory demands, while fostering a productive collaborative atmosphere with various stakeholders. Improving GSC and GRC can provide sustainable competitive differentiation for hotels amidst increasing competition and market demands for environmentally friendly business practices.

References

Asadi, S., OmSalameh Pourhashemi, S., Nilashi, M., Abdullah, R., Samad, S., Yadegaridehkordi, E., Aljojo, N. & Razali, N. S. (2020). Investigating Influence of Green Innovation on Sustainability Performance: A Case on Malaysian Hotel Industry. *Journal of Cleaner Production*, *258*, 120860. https://doi.org/https://doi.org/10.1016/j.jclepro.2020.120860

Bollen, K. A. (1989). *Structural equations with latents variabel*. Wiley.

Clara Dewanti, M., Marthina Rosyanti, D. & Khoirotunnisa, F. (2025). The Role of Green Human Resource Management and Green Innovation in Enhancing Environmental Performance. *Journal of Innovation in Business and Economics*, *9*(01), 139–150. https://doi.org/10.22219/jibe.v9i02.34751

Fajar, F. H. P., Budi Warsito & Aris Sugiharto. (2024). Development of PLS-SEM Analysis Application based on R Shiny and Implementation of UTAUT2 for Information System Acceptance Evaluation: Indonesia version. *JST (Jurnal Sains dan Teknologi)*, *13*(1), 147–158. https://doi.org/10.23887/jstundiksha.v13i1.68568

Firmansyah, A. (2019). The Influence of Green Intellectual Capital and Organizational Environmental Management on Green Organizational Identity and Its Impact on Green Competitive Advantage: Indonesia version. *Jurnal Substansi*, *1*(1), 183–219.

Ghozali, I. (2014). *Structural Equation Modeling metode alternatif dengan Partial Least Square*. Badan Penerbit Universitas Diponegoro.

Ghozali, I., & Fuad. (2008). *Structural Equation Modeling: Theory, Concepts and Applications with Lisrel 8.0 Program: Indonesia version.* Badan Penerbit Universitas Diponegoro.

Gürlek, M. & Koseoglu, M. A. (2021). Green Innovation Research in the Field of Hospitality and Tourism: The Construct, Antecedents, Consequences, and Future Outlook. *Service Industries Journal*, *41*(11–12), 734–766. https://doi.org/10.1080/02642069.2021.1929930

Hair, J., Black, W. C., Babin, B. J. & Anderson, R. E. (2010). *Multivariate Data Analysis: A Global Perspective* (7th.). Pearson Prentice Hall.

Haldorai, K., Kim, W. G. & Garcia, R. L. F. (2022). Top Management Green Commitment and Green Intellectual Capital As Enablers of Hotel Environmental Performance: The Mediating Role of Green Human Resource Management. *Tourism Management*, *88*, 104431. https://doi.org/https://doi.org/10.1016/j.tourman.2021.104431

Hartono, J. & Abdillah, W. (2009). *Concept and Application of PLS (Partial Least Square) for Empirical Research : Indonesia version.* BPFE.

Karyanti, B. R. & Murwaningsari, E. (2023). The Influence of Green Human Capital and Green Structural Capital on Company Performance with Green Relational Capital as a Moderating Variable: Indonesia version. *Jurnal Ekonomi Trisakti*, *3*(2), 3115–3124. https://doi.org/10.25105/jet.v3i2.17904

Mochklas, M., Situngkir, T. L., Abidin, Z., Judijanto, L., Susilawati, M. & Purnomo, H. (2024). The Impact of Green Human Capital on Hotel Performance: The Mediating Role of Innovation Activity inYogyakarta, Indonesia. *Journal of Logistics, Informatics and Service Science*, *11*(10), 383–395. https://doi.org/10.33168/JLISS.2024.1022

Nawangsari, L. C., Siswanti, I., Arijanto, A. & Wahyu, M. (2025). From Knowledge to Action: Exploring Green Intellectual Capital's Role in Sustainable Organizational Performance for Millennials. *International Review of Management and Marketing*, *15*(1), 82–90. https://doi.org/10.32479/irmm.17546

Rosalyn, G. (2023). Analysis of Actual Use of Regional Asset Management Information System Using Technology Acceptance Model Approach in Yapen Islands Regency Regional Government : Indonesia version. *Journal of Social and Economics Research*, *5*(1), 078–090. https://doi.org/10.54783/jser.v5i1.72

Sáez-Martínez, F. J., Avellaneda-Rivera, L. & González-Moreno, Á. (2016). Open and Green Innovation in the Hospitality Industry. *Environmental Engineering and Management Journal*, *15*(7), 1481–1487. https://doi.org/10.30638/eemj.2016.159

Shahzad, K., Nawaz, M., Shah, A. A. & Ashraf, M. (2023). Green Intellectual Capital as A Catalyst for Sustainable Performance (An Empirical Investigation in the Pakistani Hotel Industry). *Research Journal for Societal Issues*, *5*(2), 171–195. https://doi.org/10.56976/rjsi.v5i2.104

Shazali, R. A., Kamaluddin, A., Sa'ad, S. & Khalique, M. (2023). Green Intellectual Capital and Sustainable Performance of Hotels in Malaysia. *Economic Affairs (New Delhi)*, *68*(2), 1041–1052. https://doi.org/10.46852/0424-2513.2.2023.7

Sihombing, P. B. S. & Murwaningsari, E. (2022). The Influence of Green Relational Capital, Green Structural Capital, and Green Human Capital on Company Performance : Indonesia version. *Owner*, *7*(1), 280–292. https://doi.org/10.33395/owner.v7i1.1246

Valaei, N. (2017). Organizational structure, sense making activities and SMEs' competitiveness. *VINE Journal of Information and Knowledge Management Systems*, *47*(1), 16–41. https://doi.org/10.1108/VJIKMS-04-2016-0015

Xin, C. & Wang, Y. (2023). Green Intellectual Capital and Green Competitive Advantage in Hotels: The Role of Environmental Product Innovation and Green

Transformational Leadership. *Journal of Hospitality and Tourism Management*, *57*, 148–157. https://doi.org/https://doi.org/10.1016/j.jhtm.2023.10.001

Yarsasi , Tahyudin, H. (2025). *Analysis of Questionnaire Validity and Reliability Using Partial Least Squares Structural Equation Modeling Method in SMARTPLS Application : Indonesia version*. *5*(7), 1905–1913.

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), 1–14. https://doi.org/10.3390/ijerph18063275