Indonesian Journal of Sustainability Accounting and Management
ISSN 2597–6214 | e–ISSN 2597–6222
DOI: 10.20448/ijsam.v10i1.8577

Impact of Green Innovation on Organizational Performance: The Mediating Role of Management Commitment and the Moderating Role of HRM Practices

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Abstract: This study investigates the effects of green innovation on organizational performance, examining the mediating role of management commitment and the moderating influence of Human Resource Management (HRM) practices. Data were collected from 229 respondents in the electronic manufacturing industry and analyzed using PLS-SEM. The results indicate that green innovation exerts a strong positive impact on both management commitment and organizational performance. Furthermore, management commitment significantly mediates the relationship between green innovation and performance. The findings also reveal that HRM practices serve as a crucial moderator, enhancing the impact of management commitment on organizational outcomes. Theoretically, this research contributes to sustainability accounting by redefining it as a managerial obligation that bridges the gap between eco-friendly innovation and firm performance. Strategically, the study suggests that manufacturing firms can maximize the benefits of green innovation by fostering high levels of leadership commitment and implementing robust HRM strategies. This dual approach ensures that environmental initiatives translate into long-term competitive advantages and sustainable growth. Future research should explore these dynamics within larger corporate frameworks to determine if increased firm size further augments the positive outcomes of green innovation and ESG reporting practices.

Keywords: Green innovation, HRM practice, management commitment, organizational performance, environmental performance, social sustainability.

Article info: Received 30 September 2025 | revised 10 April 2026 | accepted 20 April 2026 | published 4 May 2026

Recommended citation: Nelson, A., Majesty, S., & Setyawan, A. (2026). Impact of Green Innovation on Organizational Performance: The Mediating Role of Management Commitment and the Moderating Role of HRM Practices. *Indonesian Journal of Sustainability Accounting and Management*, *10*(1), 139–150. https://doi.org/10.20448/ijsam.v10i1.8577

INTRODUCTION

Knowledge and technology are expanding in this age of modernity, which is getting better and better all the time. Thanks to the expansion of both our technological capabilities and our collective body of knowledge,

many companies create resources without thinking about the adverse effects that can occur on the environment and sustainability. The overuse of natural resources, harm to the environment, uneven distribution of wealth, and exploitative labor practices are contributing to an unsustainable consumption model that could have severe environmental, economic, and social consequences (Bonilla, Silva, Terra da Silva, Franco Gonçalves, & Sacomano, 2018). As a result, the world is experiencing an imbalance between sustainable resource use and economic development. Businesses may protect the environment and its resources from harm by adopting environmentally friendly practices and using innovative technology (Takalo, Tooranloo, & Parizi, 2021). Several modifications to organizations have proved that the deployment of green innovation has reduced negative environmental and social repercussions, according to William (2015).

Businesses can contribute to environmental preservation by adopting green innovation practices, supporting recycling processes, and reducing non-biodegradable energy use. To achieve green innovation goals, organizations need to foster teamwork within their ecosystem (Muthuswamy & Sharma, 2023). The findings indicate that a company will implement green innovation in its activities if all interested organizations have internal and external motives. Internal incentives include management commitment and supplier collaboration, while external motives involve regulatory pressures and consumer demand (Parmar, 2022).

A big challenge for companies that want to implement green innovation is cost, because implementing green innovation requires a large cost (Kuo & Chen, 2013). In addition, companies must also measure how green innovation can direct the growth of the company without damaging the environment. Companies have a crucial role in fostering the growth of the national economy, which is based on industrial activity (Hur, Kim, & Park, 2013). Companies must utilize innovation and technology interventions to save the environment and effectively manage resources. When considering an organization, it is important to acknowledge that stakeholders' perspectives on environmentally sustainable products, their attitudes towards purchasing such items, and their desires for these products must be considered when developing strategies (Muthuswamy & Sharma, 2023). The presence of human beings within a business is essential, hence it is crucial to evaluate the HR department's tactics for overcoming technological challenges and the level of commitment from management, thereby enhancing economic and environmental performance and gaining a competitive edge.

Organizational performance (OP) is a significant element that must be considered in a company (Ranaei & Youha, 2009). Companies need to understand the factors that may affect organizational performance under the factors that may affect organizational performance to determine the steps and strategies that will be implemented in carrying out business activities (Hur et al., 2013). As stated by Abdullah and Rahman (2015), because HRM has the power to influence the efficacy and efficiency of business members' performance, it is the most crucial component of every organization. Thus, human resource management in accordance with a company's objectives is important. Increased organizational turnover, low work efficiency and poor-quality service can occur when organizational members do not have a high commitment to the company (Anwar & Abdullah, 2021). When organizations can utilize their resources appropriately by implementing a green innovation strategy, it can increase the company's competence, so that the company's organizational performance will also increase.

Methods for the systematic and long-term management of human resources are known as human resource management practices, or HRM (Brintha, 2022). Through HRM, organizations strive to ensure that each employee can optimally contribute to achieving shared goals. HRM practices are not limited to administrative aspects but also encompass strategic planning, including recruitment, training, career development, performance appraisals, and appropriate compensation. Thus, HRM is a crucial instrument in developing a competent and loyal workforce (Muchsinati, Tiffanny, Anggraini, & Giovanna, 2026).

According to Dessler (2020), human resource management (HRM) refers to the management of an organization's employment relationships, which include activities such as hiring, training, evaluating, and compensating employees. This definition puts emphasis on HRM as an all-inclusive role that is used to warrant the effectiveness of the organization through systematic management of the employees.

Based on these diverse definitions, it can be agreed that HRM is a strategic practice that focuses on workforce management as the key asset of an organization. HRM does not merely act as a personnel administration manager, but it is also an attempt to establish alignment between the organizational objectives

and the needs of an individual (Arokiasamy, Fujikawa, Piaralal, & Arumugam, 2024). HRM is all about establishing a level of synergy between employee capabilities and the organizational strategy, thus generating added value that would be useful in long-term competitiveness.

The success of a company is a direct correspondence to the human resource management strategy. One of the measures of enhancing efficiency in the workplace is the role of human resource management (HRM) in providing staff training and development programs (Natsir, Ode, Irfana, Pulungan, & Sihite, 2024). The quality of human resources may also be retained by having a well-organized system of compensation and career management that increases employee motivation and retention in an organization. Furthermore, sound performance appraisal practices help build a collaborative and results-oriented work culture. Ultimately, organizations that consistently implement HRM practices will gain a competitive advantage, thanks to their adaptive, innovative workforce and their alignment with market needs (Breaz & Jaradat, 2023). In other words, one of the most important factors in a company's long-term success is its human resource management strategy.

According to Hoffman (2000), environmental performance is all about how well a firm manages its operations so that they don't harm the environment. Processes, goods, and resources are all part of what is known as "business activities" (Dubey, Gunasekaran, & Samar Ali, 2015). Human resource practices and green innovation are enabling variables that are necessary for environmental performance. Skills, motivation, and opportunities that are environmentally friendly are all part of HR operations. According to several sources (Chen, Chang, & Lin, 2015; Darnall, Jolley, & Handfield, 2008; Dubey et al., 2015; Oliva et al., 2019), "green innovation encompasses both product and process innovation." Businesses should provide opportunities for green training and development so that employees may participate in green innovation (El-Kassar & Singh, 2019). Therefore, management commitment is very important for company members in understanding and implementing green innovations appropriately and in line with company goals.

Elkington, Bunde-Birouste, and Apoifis (2019) stated that companies need justice, equality, human rights, the rights of future generations and the participation of governments and citizens to achieve sustainability. Social sustainability itself is related to achieving equality and social justice by promoting participation from society. Conforming to the agenda for Sustainable Development 2030 created by the UN, companies are also expected to take action to reduce inequality, improve the quality of education, improve public health, and pursue peace and social justice. The process of change to achieve sustainability requires commitment from communities, governments, educational institutions, media, professionals, and other stakeholders. The study investigates how green innovation influences organizational performance. Additionally, it examines if HRM practices and management commitment alter these outcomes. Organizational performance was found to be enhanced by green innovation (Jia & Kassim, 2024).

In order to be competitive and relevant over the long term, businesses must use green innovation (GI) (Hur et al., 2013). Competitive advantages in an organization will improve organizational performance in many aspects and lead to enormous profits (Dini, Alvina, & Mon, 2024). Organizations are more likely to achieve long-term success in the marketplace when they successfully use green innovation (Hur et al., 2013). Sustainable competitive advantages in an organization can help an organization to attract customers, create high quality organization identity, and gain an enormous profit. However, every organization has its own way to implement green innovation and different outcomes occur. It is possible that HRM practice and management's commitment regulate the association between green innovation and corporate performance. To what extent managerial dedication and HRM practices modulate or regulate the link between green innovation and business performance is an area that has received very little attention.

Although academic literature on such topics as environmental sustainability and organizational change has continued to grow, there exist numerous gaps. Recent studies have reported the positive relationships between ecological innovation and organizational performance (Liu, Liu, & Feng, 2024), yet the channels through which such innovations create value are somewhat unclear. In particular, the critical role of managerial commitment as a psychological and behavioral channel between investments in environmental innovations and subsequent performance improvement has received little academic interest. The modern literature

highlights the instrumental nature of the commitment of leaders to carry out the organizational change (Hanif, Younas, & Jamshed, 2023), but the actual mediating mechanisms in the process of converting the attempts at environmental innovation efforts into tangible outcomes should be the focus of systematic research. This theoretical uncertainty limits our understanding of the conversion processes that make the implementation of sustainability initiatives in organizational ecosystems successful.

The second gap of importance is the moderating role of human capital management structures on the environmental innovation-performance nexus. Although researchers have recognized the essential role of workforce management practices in the organizational transformation efforts (Bataineh, Al-Zoubi, & Al-Gharaibeh, 2024), the secondary impacts of certain human resource management packages on the environmental innovation success have not yet been theoretically elaborated and empirically investigated. More recent empirical findings indicate that strategic use of human resource management practices has a considerable positive impact on environmental innovation capabilities (Abdelhamied, Abdel-Maguid, & Ragheb, 2024), but the interactive processes by which various human resource management arrangements increase or reduce the performance implications of environmental innovation strategy deserve increased academic analysis. This knowledge gap is especially consequential considering the fact that the ability of the organization to adopt environmental innovations is essentially based on the competencies of employees, their motivation orientations and the favourable organizational systems that are shaped by human resource management practices.

The third essential weakness is the lack of integrative theoretical frameworks that can combine both mediating and moderating mechanisms into a unified set of architectural analytical frameworks. Modern studies have primarily adopted a compartmentalized methodology, investigating these relationships separately without considering how they might operate simultaneously and potentially interact (Omonijo & Zhang, 2026). This methodological reductionism has resulted in partial knowledge about the synergistic interaction between managerial commitment and human resource management practices with environmental innovation in shaping organizational performance. Additionally, the literature has largely failed to explore whether the mediating role of management commitment is conditional on the arrangement of human resource management practices, thus overlooking the potential for three-way interactions that could significantly enhance our understanding of sustainable organizational change. The research model, as shown in Figure 1, proposes a comprehensive framework to examine the drivers of organizational outcomes through the perspectives of sustainability and human capital management.

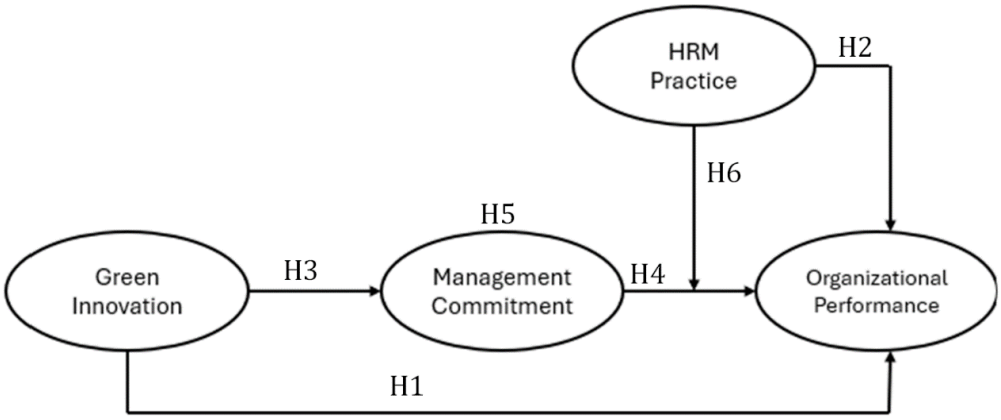

Figure 1: Conceptual framework

RESEARCH METHOD

This study employs a quantitative research design with an explanatory approach to investigate the

impact of green innovation on organizational performance, incorporating the mediating role of management commitment and the moderating role of HRM practices. The research was conducted within electronic manufacturing companies in Batam, Indonesia, selected for their active engagement in green innovation initiatives and environmental sustainability practices.

The study utilizes a purposive sampling strategy to select 229 employees from the electronics manufacturing industry in Batam. Respondents were chosen based on specific criteria: the company must operate in the Riau Islands province, possess expertise in implementing green innovation and sustainability initiatives, and have been in operation for more than three years. This non-probability sampling technique ensures that respondents possess sufficient knowledge and experience to provide informed perspectives on the research constructs (Correia, Shahzad, Moleiro Martins, & Baheer, 2024).

The sample reflects diverse organizational demographics. The gender distribution includes 142 male respondents (62.0%) and 87 female respondents (38.0%), mirroring the male-dominated nature of the manufacturing workforce. The age distribution reveals a mature and experienced workforce: 38.4% of participants are aged 31–40, 28.8% are 26–30, 19.2% are 41–50, and 8.7% are over 50. Educational levels indicate a highly qualified sample, with 58.5% holding bachelor's degrees, 24.9% master's degrees, 12.2% diplomas, and 4.4% doctoral degrees. Tenure data shows significant organizational familiarity, with 41.5% of respondents having 3–5 years of service, 31.4% having 6–10 years, 15.3% having 11–15 years, and 11.8% having over 15 years.

Operationally, the respondents represent a cross-functional perspective (Amjad et al., 2021) spanning various departments: Operations (31.4%), Human Resources (22.7%), Research and Development (18.3%), Quality Assurance (15.3%), Environmental Management (8.7%), and Production (3.6%). Inclusion criteria require at least one year of employment, direct experience with green innovation, and a supervisory-level role within an organization where green innovation is formally adopted (Al-Shammari, Alshammreii, & Nawaz, 2022). Data collection involved a structured questionnaire using seven-point Likert scales over a three-month period. To ensure reliability and validity, a pilot test was conducted with 30 respondents. Finally, the research process adheres to strict ethical protocols, ensuring informed consent, confidentiality, and voluntary participation (Aftab, Cucari, & Savastano, 2023).

RESULT AND DISCUSSION

The common tests used in testing the outer model are divided into several categories: convergent validity tests, reliability tests, and discriminant validity tests. The convergent validity test is performed to ensure the indicators employed are able to measure the latent constructs under testing as intended. Conversely, reliability testing confirms that the indicators are a reliable measure of the desired constructs by administering an internal consistency test of the measurement model. Meanwhile, to determine whether all the components are actually independent of other components in the model, the discriminant validity test is used, thereby preventing redundancy or overlap. The results of these outer model appraisals have been summarized in the following table to provide a clearer picture of the results.

Table 1: Outer Loadings, AVE, Composite Reliability

Variable	Item	Outer loading	AVE	Decision	Composite Reliability	Decision
Green Innovation	GI1	0.836	0.769	Valid	0.959	Reliable
	GI2	0.860				
	GI3	0.890				
	GI4	0.872				
	GI5	0.879				
	GI6	0.879				
	GI7	0.892				
Organizational Performance	OP1	0.773	0.618	Valid	0.907	Reliable
	OP2	0.784				
	OP3	0.785				
	OP4	0.785				
	OP5	0.782				
	OP6	0.807				
Management Commitment	MC1	0.864	0.750	Valid	0.900	Reliable
	MC2	0.859				
	MC3	0.875				
HRM Practice	HRP1	0.862	0.753	Valid	0.948	Reliable
	HRP2	0.873				
	HRP3	0.883				
	HRP4	0.856				
	HRP5	0.851				
	HRP6	0.881				

Source: Processed data, 2025.

Table 1 provides the Outer Loadings, Average Variance Extracted (AVE), and Composite Reliability for the key constructs in the study: Green Innovation (GI), Organizational Performance (OP), Management Commitment (MC), and HRM Practices (HRP). This table shows that outer loading values for indicators GI1-G7, OP1-OP6, MC1-MC3, and HRP1-HRP6 meet a minimum of 0.7 (Hair, Black, Babin, & Anderson, 2019). Consequently, all indicators are considered reliable (Hair et al., 2019). The AVE value indicates the proportion of variance captured by the construct's indicators, with values exceeding 0.50 deemed acceptable. For Green Innovation, the AVE value of 0.769 implies that the variance in the indicators is explained by the construct. Composite Reliability, such as the 0.959 value for Green Innovation, assesses the internal consistency of the construct, with values above 0.70 indicating good reliability. The final set of items for each construct is shown, together with their corresponding outer loadings, AVE, and Composite Reliability. Notably, all indicators had strong factor loadings well above the suggested criteria, indicating that each item makes a considerable contribution to its intended latent construct. This high level of indicator reliability ensures a strong measurement model and provides a clear assessment of the constructs' accuracy. As shown in Table 2, the coefficient of determination (R-Square Values) was employed to assess the model's predictive relevance.

Table 2: R-Squared Values

Variable	R-Square	R-Square Adjusted	Conclusion
Management Commitment	0.518	0.516	Moderate
Organizational Performance	0.676	0.670	Moderate

Source: Processed data, 2025.

According to Hair et al. (2019), R-Squared Values analysis consists of three distinct classifications: a weak effect with a value of 0.25, a moderate effect with a value of 0.50, and a strong effect with a value of 0.75. Based on the data

provided, the R-Squared values for organizational performance, environmental performance, and social sustainability fall below 0.75 but remain above 0.50. This indicates that the predictive power for these variables is moderate.

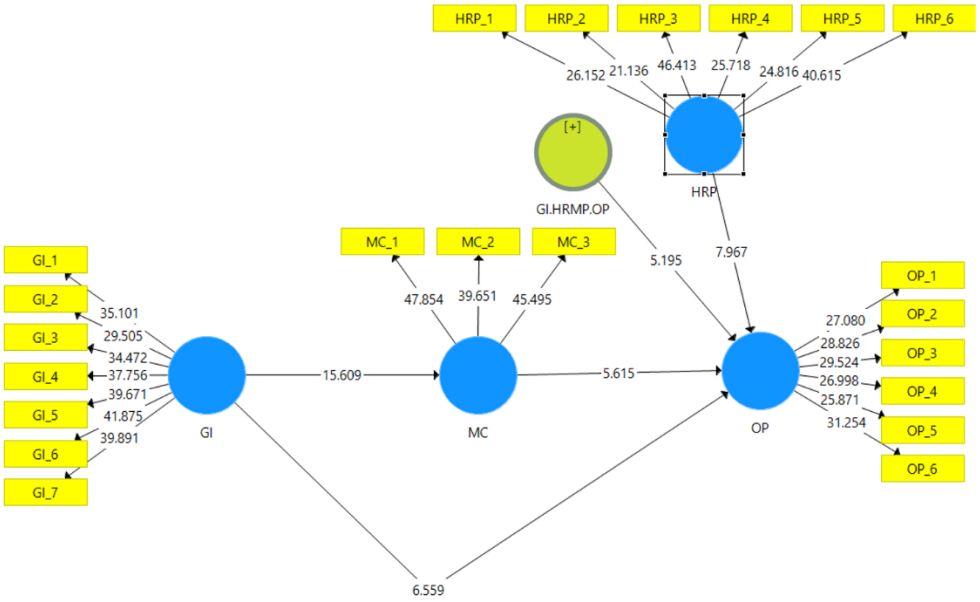

Figure 2: Results of Structural Equation Model with Bootstrapping Method
Source: Processed data, 2025.

Figure 2 presents the outcome of testing the Structural Equation Model (SEM), conducted through the bootstrapping method. To obtain more reliable and solid estimates, this method was applied to confirm whether the correlations of variables, as predicted by the model, were statistically significant. Bootstrapping is a non-parametric resampling technique that can produce standard errors and confidence intervals, and it is not dependent on the data being normally distributed. Therefore, it is especially appropriate for complex models like SEM. In this way, the direct and indirect relationship strength, as well as the importance of relationships between constructs, may be strictly studied. Accordingly, the summaries of the results provided in the table offer an in-depth overview of the hypotheses tested and the overall validity of the proposed structural model.

Table 3: Bootstrapping Method SEM Test Result

Hypothesis	Relationship	Standard Deviation	T-Statistic	P-value	Conclusion
1	GI -> OP	0.057	6.546	0.000	Supported
2	HRMP -> OP	0.054	7.295	0.000	Supported
3	GI-> MC	0.043	16.892	0.000	Supported
4	MC -> OP	0.061	5.613	0.000	Supported
5	GI -> MC -> OP	0.045	5.442	0.000	Supported
6	GI*HRMP -> OP	0.046	5.112	0.000	Supported

Source: Processed data, 2025.

Table 3 shows the results of hypothesis 1, the effect of green innovation on organizational performance. Green innovation and organizational success have a positive, significant relationship, indicated by the initial sample value of 0.057. The relationship between green innovation and organizational success is statistically significant (T = 6.546, P = 0.000). This suggests that green innovation has a significant positive influence on organizational performance since the T-statistic for green innovation exceeds 1.96, and the P-value is less than

0.05. Empirical evidence strongly supports that green innovation can enable companies to significantly enhance their performance. This indicates that green innovation is helpful for the long-term sustainability of corporations and is crucial in creating a competitive advantage. The findings align with those of Wang, Li, and Li (2021) and Imran, Banderlipe, and Nagasawa (2021), emphasizing the role of green innovation in improving operational efficiency, corporate image, and the achievement of strategic objectives.

The original sample value of 0.054 forms a positive relationship between green innovation and organizational performance and demonstrates hypothesis 2 that a connection exists between HRM practices and organizational performance. Green innovation and organizational performance relate to the T-statistic and P-value, respectively, of 7.295 and 0.000. This is revealing, as HRM practices produce a significant positive influence on organizational performance, indicated by a T-statistic greater than 1.96 and a P-value less than 0.05. An analysis of the existing data shows that HRM practices have a tremendous positive influence on organizational performance (Setyawan & Nelson, 2021). Well-managed human resource management strategies are believed to enhance morale, competence, and productivity, which will assist the company in achieving their long-term goals. Tayyab, Noordin, and Jamil (2022) and Muangmee, Kot, Meekaewkunchorn, Kassak, and Khalid (2021) note that effectiveness, innovativeness, and the quality of performance are the outcomes of an organization that can enhance their competitiveness through the application of successful HRM practices.

Having a starting point of 0.043, which adheres to Hypothesis 3, we can assert that there is a positive correlation between green innovation and managerial commitment. Green innovation and management commitment have a statistically significant relationship (T-statistic = 16.892, P = 0.001). The T-statistic is more than 1.96, and the P-value is less than 0.05, indicating that green innovation significantly positively affects managerial commitment. Studies have revealed that green innovation can become a great enhancement to management buy-in. Thus, a green innovation-driven strategy is not merely an effort to adapt to external environmental pressures; it also compels management to be more aligned in their CSR and sustainability initiatives. When management is engaged in the cause, it is more likely to support eco-friendly policies, resource allocation, and the establishment of a company culture geared toward sustainability. Among others, this study, along with the earlier research done by Shahzad, Qu, Zafar, Rehman, and Islam (2020) and Jovanović, Arsić, and Milošević (2023), proves the fact that green innovation is significant in supplementing the management tasks, in particular, in carrying out strategies that are sustainable and competitive to organizations.

Based on the initial sample outcome of 0.061, which confirms Hypothesis 4, the managerial commitment is positively correlated with organizational performance. Managerial commitment has a statistically significant correlation with organizational success (T-statistic = 5.613, P = 0.000). Managerial commitment has a significant positive influence on organizational performance with a T-statistical value of above 1.96 and a P-value of below 0.05. Findings show that management buy-in has a great effect on driving organizational performance. The leadership of a company is indeed engaged when they are capable of steering its course and resources in the correct direction and when they go to extremes to build an innovative workplace that is future-oriented. With the constantly changing economic environment, such commitment assists companies in increasing operational effectiveness, productivity, and competitiveness in the long term. Shahzad et al. (2020) emphasized that management commitment is essential in bridging the gap between organizational strategy and the best performance, and the findings of the research are coherent with the indicated perspective.

Management commitment has a positive and significant impact on the existence of a green innovation-organizational performance relationship as a mediator (Hypothesis 5). The mediation of management commitment is evident with a starting sample of the associations being 0.045. Having an equal P-value of 0.000, the T-statistic value of managerial commitment as a mediating variable is 5.442. The T-statistic of more than 1.96 and P-value of less than 0.05 demonstrate that management commitment as a mediator plays a significant positive role in the relationship between green innovation and organizational success. This study has revealed that there is a mediating role of management commitment in relation to the relationship between green innovation and organizational success. For this reason, it is crucial to have the full backing of upper management in order for green innovation initiatives to significantly boost organizational performance. This intermediary function verifies that green innovation needs continuous and active participation from

management to substantially affect the efficiency, sustainability, and productivity of an organization; it is not only a technological plan. In line with these findings, research by Ahmed, Ahmed, Usman, and Shaukat (2021) verifies that the level of commitment from management plays a crucial role in enhancing the impact of green innovation on accomplishing organizational objectives.

Green innovation and organizational performance are positively and significantly influenced by HRM practices as a moderator, according to Hypothesis 6. The initial sample association value is 0.046, indicating HRM practices have a moderating effect. With a P-value of 0.000 and a T-statistic of 5.112, the results confirm the significance of HRM practices in this role. As shown by a T-statistic > 1.96 and a P-value < 0.05, this indicates that HRM practice as a moderator has a considerable beneficial impact on the relationship between green innovation and organizational success. Results show that HRM practices moderate the connection between green innovation and organizational success. This implies that HRM practices such as environmental competency-based recruitment, ongoing training, and incentive systems that foster ecologically friendly behavior will enhance the effectiveness of integrating green innovation in improving organizational performance. Firms should strengthen the application of green innovation to ensure the desired benefits of efficiency, productivity, and competitiveness are realized. The findings are consistent with what (Ahmed et al., 2021) discovered, which is that HRM practices are a pivotal factor for green innovation to succeed in enhancing organizational performance.

Moreover, HRM practices are found to positively impact organizational performance. A competitive advantage is directly linked to properly implemented human resource management practices that enhance employee motivation, competence, and productivity. The study also highlights that management commitment plays a mediating role with green innovation and organizational results, as well as a direct role in improving organizational performance. An environmental consciousness culture can only thrive when top management has unquestioning support for initiatives aimed at enhancing the environment.

Green innovation and organizational success have a positive relationship, with HRM practices mediating this connection. Harmonized HRM practices are essential to maximize green innovation in terms of productivity and competitiveness. These include green recruitment procedures, continuous training, and reward schemes that embrace green practices. To build resilient, competitive, and adaptable companies in the ever-changing global business environment, it is crucial that green innovation, managerial commitment, and HRM practices work together.

Moreover, the management commitment in translating green innovation into organizational performance indicates that the entire impact of green innovation is realized through management commitment mechanisms. Green innovation directly affects organizational outcomes; a large percentage of its effectiveness depends on active leadership involvement and strategic organizational management support. On an implementation basis, any company aiming to maximize green innovation benefits must invest in developing strong management commitment, clear communication of the sustainability agenda, embedding environmental indicators into executive performance measurement systems, and portraying top management as responsible for ecological performance. Organizations lacking full management support will not realize the potential performance benefits of green innovation investments, resulting in significant unrealized value and a lack of competitive positioning in increasingly sustainability-sensitive markets.

CONCLUSION

To summarize, green innovation has a positive and significant impact on management's dedication and the overall efficiency of businesses, according to this study's results. Furthermore, the findings highlight the critical significance of management buy-in and HRM practices in raising organizational performance via the promotion of sustainable practices, the enhancement of efficiency, and the reinforcement of long-term competitiveness. The association between green innovation and organizational performance is favorably and considerably strengthened by management commitment, which acts as a mediating variable. The significance of coordinating human capital plans with innovations focused on sustainability is further demonstrated by the

fact that HRM practices moderate the effect of green innovation on organizational performance. All said and done, our findings provide new insight into the strategic relevance of green innovation by exploring its effects on organizational performance, the role played by management commitment as an intermediary, and the role played by HRM practices as a moderator. The research offers valuable information on the impact of green innovation on organizational performance via the mediator management commitment and the moderator effect of HRM practices. However, there are some avenues that future research can explore to advance this field of inquiry. One, further research can be done in various fields of industry other than electronic production, including the service or energy industry, in a bid to produce more comprehensive results. Second, due to the rather small sample size, which is based on one geographical setting, it would be beneficial to conduct cross-country (or cross-cultural) research that would help determine the generalizability of the model. Furthermore, future studies may consider including other variables, such as organizational culture, corporate sustainability practices, or the role of digital technologies as possible mediating or moderating factors that can influence the relationship between green innovation and organizational performance.

The practical implications of the present study are important to organizational management, especially regarding improving competitiveness through environmentally oriented innovation. Evidence shows that management commitment mediates the relationship between green innovation and organizational performance, highlighting the importance of regular leadership involvement in sustainability agendas. Managers are expected to incorporate environmental visions into corporate strategies and support these through resource allocation and operational policies. Additionally, the moderate positive role of HRM practices emphasizes the need to align recruitment, training, and reward systems with environmentally friendly behaviors. This approach enables organizations to enhance their business performance while also gaining a better reputation as a company focused on long-term sustainability and social responsibility.

The time period for conducting the research is relatively limited and short enough that it cannot fully understand the scope of the desired research object. Additionally, the number of samples in this study can be considered too small or not representative of the wider population, given the large number of manufacturers in Riau Islands Province. Therefore, future research should consider a longer duration and include more samples to obtain more accurate results.

FUNDING: This study was supported by funding from Universitas Internasional Batam, Indonesia, and I thank Universitas Internasional Batam for their support and guidance.

INSTITUTIONAL REVIEW BOARD STATEMENT: This study approved by Universitas Internasional Batam, Indonesia with protocol No: 013/REK/KEP-UIB/XII/2025, dated [Dec 01, 2025]. Informed verbal consent was obtained from all participants, and all data were anonymized to protect participant confidentiality.

TRANSPARENCY: The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

COMPETING INTERESTS: The authors declare that they have no competing interests.

AUTHORS' CONTRIBUTIONS: All authors contributed equally to the conception and design of the study. All authors have read and agreed to the published version of the manuscript.

REFERENCES

Abdelhamied, A. H., Abdel-Maguid, M. A. S., & Ragheb, M. A. A. (2024). The impact of green human resource management on environmental innovation: The mediating role of environmental commitment. *Journal of Cleaner Production*, *434*, 139906.

Abdullah, H. A., & Rahman, S.-N. A. (2015). Strategic management accounting and organizational performance: The mediating role of human resource management. *Journal of Management and Sustainability*, *5*(2), 126–135.

Aftab, J., Abid, N., Cucari, N., & Savastano, M. (2023). Green human resource management and environmental performance: The role of green innovation and environmental strategy in a developing country. *Business Strategy and the Environment*, *32*(4), 1782–1798. https://doi.org/10.1002/bse.3219

Ahmed, M., Ahmed, N., Usman, M., & Shaukat, M. S. (2021). The role of management commitment in green innovation and organizational objectives. *Journal of Cleaner Production*, *313*, 127963.

Al-Shammari, A. S. A., Alshammreii, S., & Nawaz, N. (2022). Green human resource management and sustainable performance with the mediating role of green innovation: A perspective of new technological era. *Journal of Sustainable Business Practices*, *10*, 1–12.

Amjad, F., Abbas, W., Zia-Ur-Rehman, M., Baig, S. A., Hashim, M., Khan, A., & Rehman, H.-U.-. (2021). Effect of green human resource management practices on organizational sustainability: The mediating role of environmental and employee performance. *Environmental Science and Pollution Research*, *28*(22), 28191-28206. https://doi.org/10.1007/s11356-020-11307-9

Anwar, G., & Abdullah, N. N. (2021). The impact of human resource management practice on organizational performance. *International Journal of Engineering, Business and Management*, *5*(1), 35–47.

Arokiasamy, L., Fujikawa, T., Piaralal, S. K., & Arumugam, T. (2024). Role of HRM practices in organization performance: A survey approach. *International Journal of Sociotechnology and Knowledge Development*, *16*(1), 1-32. https://doi.org/10.4018/IJSKD.334555

Bataineh, K., Al-Zoubi, A., & Al-Gharaibeh, M. (2024). The impact of strategic human resource management practices on organizational transformation: The mediating role of employee engagement. *Journal of Management and Organization*, *30*(1), 112–131.

Bonilla, S. H., Silva, H. R. O., Terra da Silva, M., Franco Gonçalves, R., & Sacomano, J. B. (2018). Industry 4.0 and sustainability implications: A scenario-based analysis of the impacts and challenges. *Sustainability*, *10*(10), 3740. https://doi.org/10.3390/su10103740

Breaz, T.-R.-O., & Jaradat, M. (2023). Strategic human resource management: Aligning HR practices with organizational goals. *Proceedings of the International Management Conference*, *17*(1), 552–559.

Brintha, R. K. (2022). Role of HRM practices in performance of organization. *International Journal of Health Sciences*, *6*(S2), 8785–8790.

Chen, Y.-S., Chang, C.-H., & Lin, M.-J. (2015). Green absorptive capacity and green innovation. *Sustainability*, *7*(12), 15951–15970.

Correia, A. B., Shahzad, M. F., Moleiro Martins, J., & Baheer, R. (2024). Impact of green human resource management towards sustainable performance in the healthcare sector: Role of green innovation and risk management. *Cogent Business & Management*, *11*(1), 2374625. https://doi.org/10.1080/23311975.2024.2374625

Darnall, N., Jolley, G. J., & Handfield, R. (2008). Environmental management systems and green supply chain management: Complements for sustainability? *Business Strategy and the Environment*, *17*(1), 30-45. https://doi.org/10.1002/bse.557

Dessler, G. (2020). *Human resource management* (15th ed.). United States: Pearson Education, Inc.

Dini, Y. I. F., Alvina, J., & Mon, M. D. (2024). The effect of work-life balance as a mediator and job opportunity as moderator on turnover intention among selected corporations in Batam. *Jurnal Manajemen dan Pemasaran Jasa*, *17*(2), 241-260. https://doi.org/10.25105/v17i2.19820

Dubey, R., Gunasekaran, A., & Samar Ali, S. (2015). Exploring the relationship between leadership, operational practices, institutional pressures and environmental performance: A framework for green supply chain. *International Journal of Production Economics*, *160*, 120–132. https://doi.org/10.1016/j.ijpe.2014.10.001

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

Elkington, M., Bunde-Birouste, A., & Apoifis, N. (2019). Sustainable funding mechanisms used by sport for social change organisations. *The International Journal of Sport and Society*, *10*(4), 43–55. https://doi.org/10.18848/2152-7857/CGP/v10i04/43-55

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis (8th ed.)*. United Kingdom: Cengage Learning EMEA.

Hanif, M. S., Younas, A., & Jamshed, K. (2023). Does green leadership matter for green innovation? A mediating role of green organizational commitment and green knowledge sharing. *Management of Environmental Quality: An International Journal*, *34*(2), 522–541.

Hoffman, A. J. (2000). *Competitive environmental strategy: A guide to the changing business landscape*. Washington, DC: Island Press.

Hur, W.-M., Kim, Y.-J., & Park, K.-H. (2013). The effect of eco-innovation on environmental performance and customer value: A moderating effect of environmental strategy. *Sustainability*, *5*(3), 1103–1127.

Imran, M., Banderlipe, M. R. S. I., & Nagasawa, S. (2021). Impact of green supply chain management and green innovation on environmental and social performance: A case of pharmaceutical industry. *Sustainability*, *13*(24), 13860.

Jia, G., & Kassim, A. A. M. (2024). The effect of green innovation on corporate financial performance: A literature review. *Journal of Theory and Practice of Management Science*, *4*(5), 13-20.

Jovanović, J., Arsić, M., & Milošević, I. (2023). The impact of green innovation on organizational performance: The mediating role of sustainability strategy. *Journal of Engineering and Management*, *15*(2), 88–104.

Kuo, S. C., & Chen, P. C. (2013). Effects of green innovation on environmental and corporate performance: A stakeholder perspective. *Sustainability*, *5*(5), 2308–2327.

Liu, M., Liu, L., & Feng, A. (2024). The impact of green innovation on corporate performance: An analysis based on substantive and strategic green innovations. *Sustainability*, *16*(6), 2588. https://doi.org/10.3390/su16062588

Muangmee, C., Kot, S., Meekaewkunchorn, N., Kassak, P., & Khalid, B. (2021). Factors determining the use of e-wallet in Thailand: An extended TAM model. *Frontiers in Psychology*, *12*, 642944.

Muchsinati, E. S., Tiffanny, T., Anggraini, R., & Giovanna, Y. (2026). Harmonious environmental passion mediating green HRM, self-efficacy, and values. *Jurnal Manajemen*, *30*(1), 1–29. https://doi.org/10.24912/jm.v30i1.3111

Muthuswamy, V. V., & Sharma, A. (2023). Moderating effects of environmental governance on environmental innovations and carbon dioxide emissions. *AgBioForum*, *25*(1), 203-214.

Natsir, I., Ode, H., Irfana, T. B., Pulungan, D. R., & Sihite, M. (2024). An analysis of the role of human resource management in enhancing organizational efficiency and effectiveness. *International Journal of Economics*, *3*(2), 1089–1097. https://doi.org/10.55299/ijec.v3i2.1097

Oliva, F. L., Semensato, B. I., Prioste, D. B., Winandy, E. J. L., Boffi, S., Neto, A. J., & Figueiredo, F. C. (2019). Innovation in the main Brazilian companies: An analysis from the perspective of the Oslo manual and the global innovation index. *Journal of Innovation & Knowledge*, *4*(2), 95-102.

Omonijo, O. N., & Zhang, Y. (2026). Understanding the performance of Chinese high-tech industry and technological innovations on Africa CSR practices. *Environment, Development and Sustainability*, *28*, 1735–1757. https://doi.org/10.1007/s10668-024-05033-2

Parmar, V. (2022). The role of green innovation on environmental and organizational performance: Moderation of human resource practices and management commitment. *Heliyon*, *9*(1), e12679.

Ranaei, H., & Youha, M. (2009). The impact of knowledge management on organizational performance. *Journal of Applied Sciences*, *9*(21), 3823–3831.

Setyawan, A., & Nelson, A. (2021). The role of organizational culture in the influence of HR practices, knowledge management, and talent management on organizational performance. *Jurnal Dinamika Manajemen*, *12*(2), 275–284.

Shahzad, M., Qu, Y., Zafar, A. U., Rehman, S. U., & Islam, T. (2020). Exploring the influence of knowledge management process on corporate sustainable performance through green innovation. *Journal of Knowledge Management*, *24*(9), 2079-2106. https://doi.org/10.1108/JKM-11-2019-0624

Takalo, S. K., Tooranloo, H. S., & Parizi, Z. S. (2021). Green innovation: A systematic literature review. *Journal of Cleaner Production*, *279*, 122474. https://doi.org/10.1016/j.jclepro.2020.122474

Tayyab, S. M. U. D., Noordin, F., & Jamil, R. A. (2022). Effect of innovations in human resource practices, innovation capabilities, and competitive advantage on small and medium enterprises' performance in Thailand. *Journal of Open Innovation: Technology, Market, and Complexity*, *8*(4), 1-18.

Wang, M., Li, Y., & Li, J. (2021). Influence of green technology innovation on corporate financial performance: The role of environmental regulation. *Sustainable Production and Consumption*, *28*, 448–458.

William, S. (2015). Green innovation and its effects on the environmental and social performance of organizations. *Journal of Cleaner Production*, *108*, 1–12.