





“The role of green relational capital in driving sustainable performance of tourism MSMEs: Evidence from green innovation and entrepreneurial orientation”

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THE ROLE OF GREEN RELATIONAL CAPITAL IN DRIVING SUSTAINABLE PERFORMANCE OF TOURISM MSMES: EVIDENCE FROM GREEN INNOVATION AND ENTREPRENEURIAL ORIENTATION

Abstract

This study examines the determinants of sustainable performance by investigating the role of green relational capital, with green innovation and green entrepreneurial orientation as mediators, among 193 tourism-based MSME owners operating across tourism destinations in East Java, Indonesia. The proposed research model was empirically tested using partial least squares–structural equation modeling (PLS-SEM). The findings show that green relational capital has a significant effect on sustainable performance ($\beta = 0.330$, $p < 0.01$) and significantly influences green innovation ($\beta = 0.725$, $p < 0.01$) as well as green entrepreneurial orientation ($\beta = 0.565$, $p < 0.01$). Green innovation significantly affects sustainable performance ($\beta = 0.329$, $p < 0.01$), as does green entrepreneurial orientation ($\beta = 0.287$, $p < 0.01$). Furthermore, green innovation mediates the relationship between green relational capital and sustainable performance ($\beta = 0.162$, $p < 0.01$), while green entrepreneurial orientation also acts as a mediator ($\beta = 0.238$, $p < 0.01$). These results underscore the strategic importance of leveraging environmentally oriented relational networks to enhance innovation capabilities and entrepreneurial orientation in supporting sustainability goals among tourism-sector MSMEs.

Keywords

green relational capital, green innovation, green entrepreneurial orientation, sustainable performance

JEL Classification

Q56, L26, O31

INTRODUCTION

The development of the tourism sector in Indonesia is closely linked to the role of micro, small, and medium enterprises (MSMEs), which make substantial contributions to job creation, improvement of local community incomes, and promotion of more equitable economic distribution across tourism destination areas, thereby supporting economic growth and human development (Mihalic, 2016). The success of tourism-based MSMEs cannot be assessed solely by short-term profits, as the sector affects economic, social, and environmental dimensions. Unsustainable management can harm the environment, local culture, and social balance. Therefore, the performance of tourism MSMEs should be evaluated through a sustainable triple bottom line approach encompassing profit, people, and planet.

The achievement of sustainable performance requires the role of green relational capital (Haddad et al., 2024). Green relational capital among MSMEs in tourism destination areas is reflected in the strengthening of collaborative relationship patterns between small business actors

and various stakeholders, such as destination managers, local governments, local communities, suppliers, and tourists, in supporting environmentally friendly business practices (Nazari et al., 2012).

Green relational capital helps MSMEs in tourism destinations build strong relationships with stakeholders; however, these relationships alone do not automatically lead to tangible improvements in sustainability performance unless they are accompanied by concrete green innovation (Liu, 2024). MSMEs in tourism areas have considerable opportunities to implement green innovation in souvenir production and to create superior souvenir products that appeal to tourists who are increasingly concerned about environmental issues, which in turn contributes to improved sustainable performance (Huang & Li, 2017).

Environmentally responsible entrepreneurship represents an entrepreneurial orientation that focuses not only on generating economic profit but also on considering social and environmental factors related to the concept of tourism sustainability, whether in economic, social, or environmental terms (Faccin et al., 2017). Green entrepreneurial orientation strengthens the relationship between relational resources in creating green value that enhances sustainable performance (Guzman et al., 2017).

Improving the sustainable performance of tourism MSMEs depends on their ability to build environmentally oriented relationships (green relational capital). These relationships stimulate eco-friendly innovation and strengthen green entrepreneurial orientation. However, research integrating all three within tourism MSMEs remains limited, particularly in explaining how green relational capital enhances sustainable performance through the mediating roles of green innovation and green entrepreneurial orientation.

1. LITERATURE REVIEW AND HYPOTHESES

When modeling the relationship between green relational capital, one of the determinants of sustainable performance, through green innovation and green entrepreneurial orientation, there are several grand theories to consider as a solid foundation for the analysis. Resource-based theory (RBT) is a theoretical lens applied in modern business strategy, in which capabilities and resources are treated as tangible and intangible assets available to a firm that can be used to assist in selecting and determining company strategy (Barney, 1991). Company performance is influenced by internal and external factors, but is a function of competitive dynamics and industry context (Makhija, 2003). Chen (2008) elaborates on this in the context of green relational capital as a two-way communication between a firm and its consumers, suppliers, networks, and stakeholders in the firm's environmental management and green innovation efforts, enabling the creation of profits and competitive advantage.

Sustainable performance in business is characterized by a firm's ability to maintain and achieve long-term success while minimizing negative im-

pacts on the environment and society (Haddad et al., 2024). Sustainable performance, according to Dyllick and Hockerts (2002), reflects the extent to which a firm integrates sustainability into its strategy, processes, and performance indicators. This includes the generation of economic value in a sustainable manner, the improvement of social welfare within and around the firm, and the reduction of negative environmental impacts. Green relational capital contributes to sustainable performance (Alkaf et al., 2023; Vale et al., 2022; Haddad et al., 2024; Zalfa & Novita, 2023). However, different findings were reported by Alnaim and Metwally (2024) and Hunafah and Rachmawati (2023), presenting that green relational capital did not contribute to sustainable performance.

Green relational capital provides a foundation for the development of green innovation and green entrepreneurial orientation, as strong relational networks accelerate the diffusion of innovative ideas and encourage collaboration in designing environmentally friendly products and processes. Such innovation serves as an important mechanism linking green relational capital to the achievement of sustainable performance, which encompasses economic, social, and environmen-

tal aspects simultaneously (Haddad et al., 2024). Green innovation demonstrated by MSMEs as a result of green relational capital (Yusliza et al., 2020; Kurniawati & Widiayana, 2024; Liu, 2024; Liu et al., 2022) has implications for sustainable performance (Dangelico & Pontrandolfo, 2015; Huang & Li, 2017; Husnaini & Tjahjadi, 2021).

Green entrepreneurial orientation is often associated with psychometric characteristics reflected in the behaviors of MSME actors, including innovative actions, proactive initiatives, and risk-taking behavior (Gull et al., 2021). The enhancement of this entrepreneurial orientation is also influenced by the role of green relational capital (Faccin et al., 2017; Nazari et al., 2012; Okafor, 2012) among MSME actors, which in turn shows a positive correlational relationship with improvements in sustainable performance (Rauch et al., 2009; Wiklund & Shepherd, 2005; Guzman et al., 2017; Rokhman, 2023).

Green relational capital emphasizes the quality of relationships between tourism MSMEs and environmentally oriented stakeholders as a foundation for sustainable business practices. These strong relationships encourage the emergence of green innovation and strengthen green entrepreneurial orientation, which function as mediating mechanisms in translating relational resources into improved sustainable performance. Therefore, the success of sustainable performance among tourism MSMEs is determined not only by internal resources but also by the ability to build innovative and entrepreneurially oriented green networks.

Based on the theoretical framework, the objective of this study is to analyze the effect of green relational capital on sustainable performance, with green innovation and green entrepreneurial orientation as mediating variables.

Conceptually, the following hypotheses are developed:

- H_1 : *Green relational capital exerts a positive influence on sustainable performance.*
- H_2 : *Green relational capital exerts a positive influence on green innovation.*

H_3 : *Green relational capital exerts a positive influence on entrepreneurial orientation.*

H_4 : *Green innovation exerts a positive influence on sustainable performance.*

H_5 : *Entrepreneurial orientation exerts a positive influence on sustainable performance.*

H_6 : *Green innovation mediates the effect of green relational capital on sustainable performance.*

H_7 : *Green entrepreneurial orientation mediates the effect of green relational capital on sustainable performance.*

2. METHOD

This study employs the PLS-SEM approach to examine exploratory effects in contexts where theoretical frameworks are still underdeveloped or have not been sufficiently extended. The PLS-SEM method involves two stages of analysis, namely the measurement model and the structural model (Hair et al., 2010). The measurement model is used to assess MSME actors' perceptions at tourism destinations regarding green relational capital, green innovation, green entrepreneurial orientation, and sustainable performance. A construct is considered valid when its indicator coefficients are statistically significant, and no multicollinearity issues are detected (Hair et al., 2010).

This study employed a survey method to collect data (Appendix A). Primary data were obtained through questionnaires completed by 193 MSME actors at tourism destinations in East Java Province, Indonesia, namely Kawah Ijen, Mount Bromo, Mount Kawi, Mount Kelud, and Telaga Sarangan. The detailed characteristics of the respondents are presented in Table 1.

The sampled MSMEs comprised environmentally oriented tourism-related businesses, such as handicraft and souvenir enterprises that use natural or recycled materials and implement green operational practices, including the use of local resources. Purposive sampling was applied to ensure that only enterprises actively engaged in tourism activ-

Table 1. Respondent characteristics

Individual Characteristics	Total
Gender	
Male	112
Female	82
Age	
21–30 years	38
31–40 years	72
41–50 years	56
> 50 years	27
Latest Education Level	
Junior High School or below	16
Senior High School / Equivalent	97
Diploma	28
Bachelor's Degree (S1)	52
Business Duration	
< 5 years	49
5–10 years	78
> 10 years	66

ities and exposed to environmental sustainability issues were included in the study. This consideration was important because these destinations represent ecologically sensitive areas where the implementation of green practices is highly relevant. Data collection was conducted from July 3 to September 10, 2025, with strict adherence to research ethics, particularly in safeguarding the confidentiality of respondents' identities and responses.

Each indicator was rated employing a five-point Likert scale. Green relational capital consisted of three indicators with six items (Mohd et al., 2019; Delgado-Verde et al., 2014; Cohen & Kaimenakis, 2007). Green innovation comprised three indicators with six item (Yusliza et al., 2020; Liu & Lyu, 2022). Green entrepreneurial orientation included four indicators with eight items (Faccin et al., 2017; Nazari et al., 2012; Okafor, 2012; Rokhman et al., 2023). Finally, sustainable performance consisted of three indicators with six items (Rauch et al., 2009; Wiklund & Shepherd, 2003; Guzman et al., 2017; Ratnawati et al., 2024).

This paper applies the PLS-SEM approach using SmartPLS 4.0. The evaluation covers both the measurement and structural models by assessing convergent and discriminant validity, conducting regression analysis using *R*-squared values, calculating *f*-squared effect sizes, determining predictive relevance (Q^2), and testing both direct and

indirect hypotheses (Parmar et al., 2014). The measurement model reflects the outer relationship between observed indicators and their underlying latent constructs, and its assessment includes convergent validity based on factor loadings, Cronbach's alpha, and composite reliability.

3. RESULTS

The data analysis was carried out using SmartPLS 4.0 software. To clearly present the composition of each variable and its inherent measures, Figure 1 and Table 2 provide the constructs and indicators of the measurement model for green relational capital.

Table 2 illustrates that the indicators of customer relationships, supplier relationships, and partner relationships function as formative indicators of green relational capital, and each of these indicators demonstrates convergent validity with loadings higher than 0.7. Among these indicators, the partner relationship carries the highest loading value, indicating that this dimension plays the largest role in building green relational capital. In practical terms, this means that women-led MSMEs seeking to develop green relational capital are more focused on establishing relationships with business partners who care about environmentally friendly practices and on developing partnerships that support green innovation

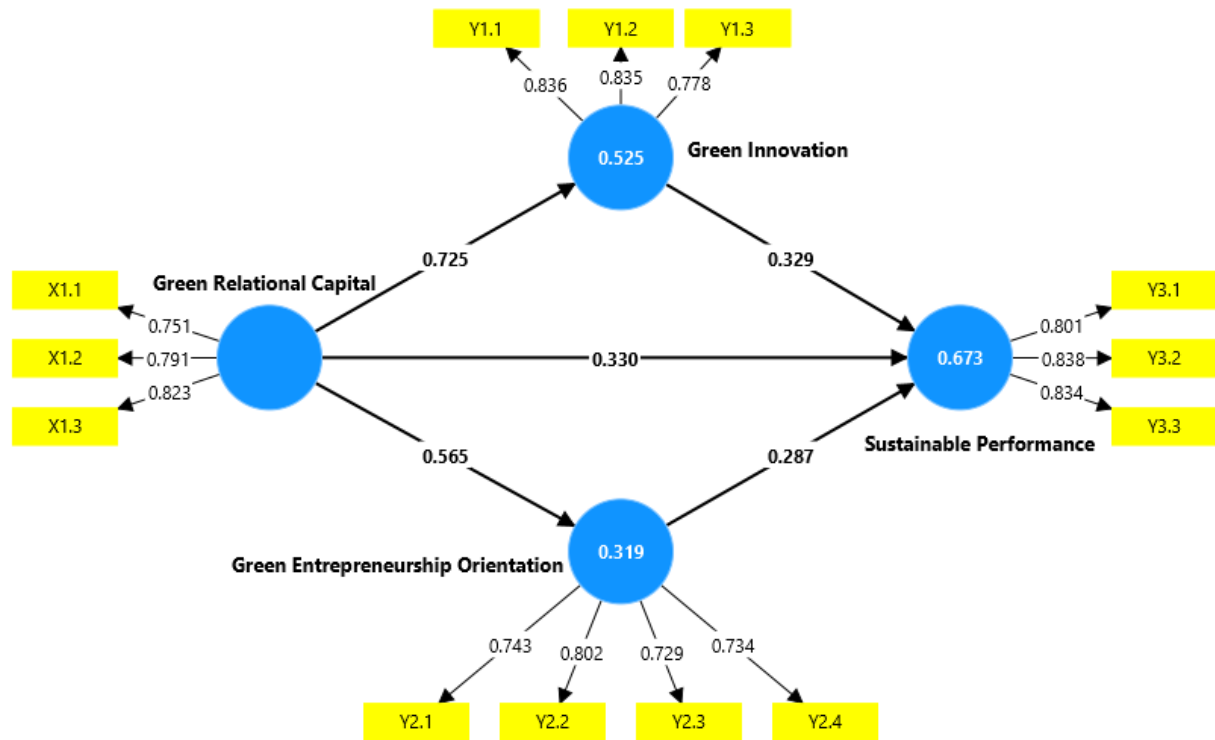


Figure 1. Structural model

Table 2. Convergent validity, reliability testing, and average variance extracted

Variable and Indicator	Factor Loading	Composite reliability	AVE
Green Relational Capital			
Customer relations	0.751	0.710	0.623
Relationship with suppliers	0.791		
Relationship with partners	0.823		
Green Innovation			
Green product innovation	0.836	0.765	0.680
Green process innovation	0.835		
Green marketing innovation	0.778		
Green Entrepreneurial Orientation			
Risk-taking	0.743	0.776	0.567
Proactive	0.802		
Confidence	0.729		
Openness	0.734		
Sustainable Performance			
Environmental sustainability	0.801	0.763	0.667
Social sustainability	0.838		
Economic sustainability	0.834		

in their business processes. The green relational capital composite reliability was greater than 0.6, which means that each of the elements is composite reliable, and an AVE value ≥ 0.5 also shows discriminant validity.

The measures of green product innovation, green process innovation, and green marketing innovation are formative indicators of green innovation,

as each measure meets convergent validity with a factor loading of above 0.7, with green process innovation having the highest factor loading. This means that of these measures, green process innovation had the most impact on green innovation. In practice, women-led MSMEs tend to conceptualize green innovation with more focus on green product innovations, e.g., using environmentally compatible materials for production and new

products designed to last longer, and eliminate potentially hazardous wastes. Composite reliability was above 0.6 for green innovation, indicating construct composite reliability, and with an average variance extracted (AVE) value ≥ 0.5 , it met discriminant validity.

The indicators of risk-taking, proactivity, confidence, and openness serve as formative indicators of green entrepreneurial orientation, all of which demonstrate convergent validity, as their factor loadings exceed 0.7. Among these, proactiveness is identified as having the highest factor loading among the grouped constructs. This indicates that proactiveness is the most significant facet in the formation of green entrepreneurial orientation. In practice, when women-led MSMEs put into practice green entrepreneurial orientation, there tends to be a greater emphasis on proactiveness, such as taking the lead on environmentally friendly handicraft products, prioritizing their production even when they were not demanded by consumers, and pursuing and creating new opportunities for developing handicrafts based on environmental sustainability. The composite reliability value of green entrepreneurial orientation is greater than 0.6, which indicates that the constructs have achieved composite reliability, as well as each of the constructs achieving discriminant validity, with an AVE value ≥ 0.5 .

The environmental, social, and economic dimensions of sustainability indicators function as the formative indicators of sustainable performance; all indicators pass convergent validity since each factor loading is greater than 0.7. Among the three indicators, environmental sustainability has the highest loading value. This finding indicates that environmental sustainability is the most significant factor in determining sustainable performance. In practice, women-led MSMEs accomplish sustainable performance specifically through social sustainability by attempting to establish harmonious relationships with local communities through social initiatives or partnerships, or by having community members take part in the production or marketing process to improve their shared well-being. The composite reliability value for sustainable performance is greater than 0.6. This indicates that each construct has achieved composite reliability and, with an AVE ≥ 0.5 , discriminant validity.

The structural model (inner model) was assessed by analyzing the R^2 values of the latent variables by the Geisser's Q^2 test, thereafter evaluating the magnitude of the structural route coefficients. The reliability of the estimations for the structural route coefficients was assessed using the t -statistics derived from the bootstrapping method.

Table 3. Inner model assessment

Variable	R-squared
Green innovation	0.673
Entrepreneurship orientation	0.319
Sustainable performance	0.525

The assessment of the inner model can be observed through the R-squared values in the equations among the latent variables (Table 3).

$$Q^2 = 1 - (1 - R_1^2) \cdot (1 - R_2^2) \cdot (1 - R_3^2). \quad (1)$$

The computation of Q-squared utilizing the R-squared data from the three models mentioned above can be performed in the following manner:

$$\begin{aligned} Q^2 &= 1 - (1 - 0.637^2) \cdot (1 - 0.319^2) \\ &\times (1 - 0.525^2) = 1 - (0.132) \cdot (0.464) \cdot (0.226) \quad (2) \\ &= 1 - 0.0138 = 0.986. \end{aligned}$$

Based on the Q-squared (Q^2) calculation, a value of 98.6% was attained, signifying that the developed model has a predictive relevance value or a significant degree of accuracy in its forecasts.

Further, the detailed results of the hypothesis testing are displayed in Figure 2 and Table 4.

The initial hypothesis (H1) posits that green relational capital positively influences sustainable performance. The findings ($\beta = 0.330$; T -value = 4.257; $p < 0.01$) demonstrate a significant and affirmative impact of green relational capital on sustainable performance; hence, H1 is validated. This result indicates that the adoption of green relational capital by women-led MSMEs in natural tourism regions enhances sustainable performance by 33%.

The second hypothesis (H2) posits that green relational capital positively influences green innovation. The findings ($\beta = 0.725$; T -value = 18.408; $p < 0.01$) demonstrate a robust and affirmative effect

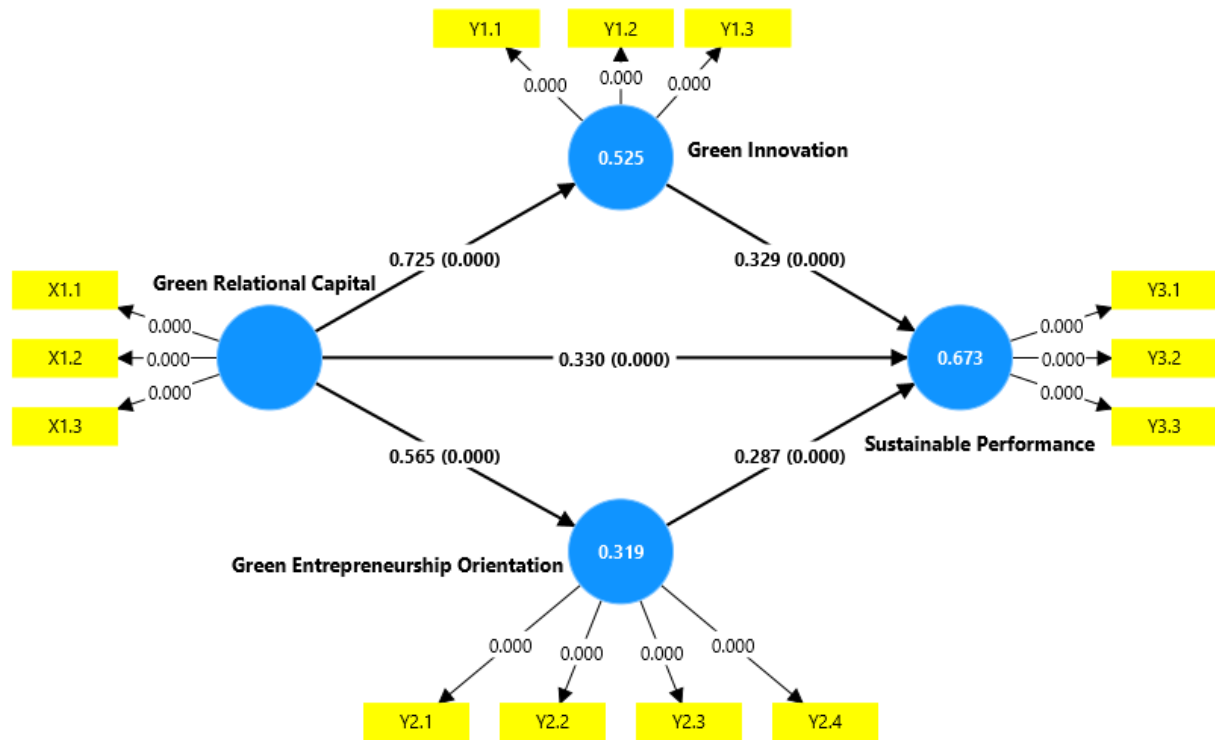


Figure 2. Research findings

Table 4. Summary of research findings

Hypothesized path	Path coefficient	CR	P value
Green Relational Capital → Sustainable Performance	0.330	4.257	0.000
Green Relational Capital → Green Innovation	0.725	18.408	0.000
Green Relational Capital → Green Entrepreneurial Orientation	0.565	9.963	0.000
Green Innovation → Sustainable Performance	0.329	4.198	0.000
Green Entrepreneurial Orientation → Sustainable Performance	0.287	4.029	0.000
Green Relational Capital → Green Innovation → Sustainable Performance	0.162	3.822	0.000
Green Relational Capital → Green Entrepreneurial Orientation → Sustainable Performance	0.238	4.030	0.000

of green relational capital on green innovation; hence, H2 is validated. This finding indicates that the adoption of green relational capital by women-led MSMEs in natural tourism regions enhances green innovation by 72.5%.

The third hypothesis (H3) concludes that green relational capital has a positive effect on green entrepreneurial orientation. The results ($\beta = 0.565$; T -value = 9.963; $p < 0.01$) indicate a strong and positive influence of green relational capital on green entrepreneurial orientation; thus, H3 is supported. This finding demonstrates that the implementation of green relational capital by women-led MSMEs in natural tourism areas contributes to a 56.5% improvement in green entrepreneurial orientation.

The fourth hypothesis (H4) posits that green innovation positively influences sustainable performance. The findings ($\beta = 0.329$; T -value = 4.198; $p < 0.01$) demonstrate a significant and affirmative impact of green innovation on sustainable performance; hence, H4 is validated. This finding indicates that the adoption of green innovation by women-led MSMEs in natural tourism regions enhances sustainable performance by 32.9%.

The fifth hypothesis (H5) posits that a green entrepreneurial approach positively influences sustainable performance. The findings ($\beta = 0.287$; T -value = 4.029; $p < 0.01$) demonstrate a significant and affirmative impact of green entrepreneurial attitude on sustainable performance; hence, H5 is validated. This finding indicates that the adoption

of green entrepreneurial orientation by women-led MSMEs in natural tourism regions enhances sustainable performance by 28.7%.

The sixth hypothesis (H6) posits that green innovation serves as a mediator in the interaction between green relational capital and sustainable performance. The findings ($\beta = 0.162$; T -value = 3.822; $p < 0.01$) demonstrate a robust and affirmative influence of green relational capital on sustainable performance, mediated via green innovation; hence, H6 is validated. This paper indicates that the adoption of green relational capital by women-led MSMEs in tourism regions fosters green innovation, hence improving sustainable performance.

The seventh hypothesis (H7) posits that green entrepreneurial orientation mediates the connection between green relational capital and sustainable performance. The findings ($\beta = 0.238$; T -value = 4.030; $p < 0.01$) demonstrate a significant and positive influence of green relational capital on sustainable performance, mediated by green entrepreneurial orientation; hence, H7 is affirmed. This discovery indicates that the adoption of green relational capital by women-led MSMEs in tourism regions fosters green entrepreneurial orientation, therefore improving sustainable performance.

4. DISCUSSION

Green relational capital, particularly the indicator of relationship with partners, emphasizes the ability of MSMEs to build long-term, trust-based relationships with environmentally concerned partners. These relationships facilitate information exchange, collaboration in eco-friendly practices, and resource support, thereby forming a foundation for improving sustainable performance, especially in the social dimension. Through strong partnerships, MSMEs are better able to implement social responsibility and community empowerment programs effectively, thereby directly driving social performance. This perspective is supported by previous studies (Alkaf et al., 2023; Vale et al., 2022; Haddad et al., 2024; Zalfa & Novita, 2023), which conclude that green relational capital contributes positively to sustainable performance.

Green relational capital has a positive effect on green innovation because MSMEs' relationships

with stakeholders, grounded in environmental values, build trust that supports the innovation process. Partnerships with business partners, suppliers, and related parties enable information exchange, access to green technologies, and collaborative product development. This support helps MSMEs produce more environmentally friendly products aligned with sustainable markets, thereby strengthening the organization's green innovation capacity. This perspective is reinforced by findings from Yusliza et al. (2020), Kurniawati and Widiyana (2024), Liu (2024), and Liu et al. (2022), which indicate that green relational capital enhances green innovation.

Green relational capital influences green entrepreneurial orientation because the quality of MSMEs' stakeholder relationships, grounded in environmental values, shapes entrepreneurial mindsets, attitudes, and behaviors that are more proactive toward sustainability. Through intensive interactions with environmentally conscious stakeholders, MSME actors are motivated to develop a green entrepreneurial orientation characterized by a willingness to take risks in eco-friendly investments, proactiveness in addressing sustainability issues, and innovativeness in creating environmentally based solutions. This conceptualization is supported by Faccin et al. (2017), Nazari et al. (2012), and Okafor (2012), who conclude that green relational capital contributes to strengthening green entrepreneurial orientation.

Green innovation has a positive effect on the sustainable performance of MSMEs in tourism destinations because environmentally oriented innovations help businesses maintain a balance between environmental sustainability, social well-being of local communities, and economic performance. Green innovation encourages MSMEs to adopt practices such as the use of locally sourced and eco-friendly materials, energy and water efficiency, and sustainable packaging. These practices reduce the negative environmental impacts of tourism activities, which in turn helps preserve the long-term viability of destinations as strategic assets. This perspective is supported by previous studies (Dangelico & Pontrandolfo, 2015; Huang & Li, 2017; Husnaini & Tjahjadi, 2021), which conclude that green innovation positively influences sustainable performance.

Green entrepreneurial orientation also exerts a positive influence on sustainable performance, as this approach places environmental sustainability at the core of organizational entrepreneurial behavior. A green entrepreneurial orientation encourages MSMEs to develop sustainable products and services, such as the use of environmentally friendly local materials, plastic reduction initiatives, and responsible tourism waste management. This orientation typically includes psychosocial components that are often reflected in levels of innovativeness, proactiveness, and risk-taking behavior among entrepreneurs (Gull et al., 2021). Earlier empirical findings (Rauch et al., 2009; Wiklund & Shepherd, 2005; Guzman et al., 2017; Rokhman, 2023) indicate that green entrepreneurial orientation contributes positively to enhanced sustainable performance.

Green innovation acts as a mediator between green relational capital and the sustainable performance of MSMEs. Green relational capital provides access to knowledge, environmentally friendly technologies, and support for sustainable practices through relationships with stakeholders. However, these relationships do not directly improve performance without an internal mechanism capable of transforming them into concrete actions; this is where green innova-

tion functions as the intermediary. Through environmentally friendly products, processes, and managerial innovations, MSMEs translate knowledge and resources from their relational networks into resource-use efficiency, waste reduction, and the creation of sustainable products. Thus, green relational capital drives green innovation, which in turn enhances sustainable performance, particularly in the environmental and economic dimensions.

Green entrepreneurial orientation also mediates the relationship between green relational capital and sustainable performance. Green relational capital represents the quality of organizational relationships with stakeholders; however, its presence alone is insufficient to directly generate sustainable performance. A strategic internal orientation is needed to respond to environmental opportunities and pressures, and green entrepreneurial orientation functions as this mediating mechanism. Through green entrepreneurial orientation, MSME actors transform relational resources into strategic actions such as the development of environmentally friendly products, the adoption of clean technologies, community-based business models, and the exploration of green markets. These green entrepreneurial activities subsequently have a direct impact on sustainable performance.

CONCLUSION

The purpose of this study is to examine the effect of green relational capital on the sustainable performance of micro, small, and medium enterprises (MSMEs) located in tourism destinations, with green innovation and green entrepreneurial orientation positioned as mediating variables within an integrated research framework. The findings indicate that green relational capital, green innovation, and green entrepreneurial orientation all have a significant impact on sustainable performance. Furthermore, the results show that green innovation and green entrepreneurial orientation mediate the relationship between green relational capital and sustainable performance. These findings suggest that MSME actors in tourism destinations can achieve sustainable performance, measured by social sustainability, as demonstrated by building harmonious relationships with local communities through social activities or partnerships and involving local communities in production or marketing processes to enhance shared well-being. This is facilitated by the role of green relational capital, measured through relationships with partners, which includes collaboration with business partners committed to environmentally friendly practices and developing partnerships that support the implementation of green innovation in business processes. The relationship between green relational capital and sustainable performance is most effective when accompanied by green innovation, measured through green product innovation, such as using environmentally friendly materials in product manufacturing and creating new products designed to be more durable and to minimize harmful environmental waste. In addition, the role of green entre-

preneurial orientation is required, measured through proactiveness, demonstrated by always taking the initiative to offer eco-friendly craft products before being requested by consumers and actively seeking new opportunities to develop crafts that support environmental sustainability.

The theoretical implications of this study are multidimensional. First, in terms of theoretical model development, this paper validates the resource-based theory (RBT), which posits that capabilities and resources, tangible or intangible, serve as assets that enable the successful selection and implementation of corporate strategies. It suggests that, to expand sustainable performance, MSMEs' ability will depend on the capability of MSME actors to leverage intangible assets based on trust, communication, and collaboration with stakeholders outside the MSME, which are articulated as green relational capital, green innovation, and green entrepreneurial orientation. Second, at the conceptual dimension, this study intentionally investigates several key factors that affect the sustainable performance of women-owned MSMEs in tourism destinations, green relational capital mediated by green innovation and green entrepreneurial orientation. Thus, a more specific model of sustainable performance is proposed by including the relevance of MSME actors' strategic behaviors to the construct of sustainable performance. Each construct was operationalized from existing literature but adapted to the context of the current study, thus creating a potential benchmark for addressing future research in this area.

This study illustrates that green relational capital is an important factor in improving the sustainable performance of women-owned MSMEs in tourism, with green innovation and green entrepreneurial orientation as mediators that enhance this effect. In practice, the implication of this study is that women-owned MSMEs should work to develop strong green relationships with customers, suppliers, and partners, and convert these into environmentally-friendly product, process, and marketing innovations. In addition, implementing a green entrepreneurial mindset, namely risk-taking, proactiveness, and readiness to engage in sustainable activities, ultimately pushes women-owned MSMEs into success. Accordingly, government programs and tourism managers should focus on enhancing green networks, supporting innovation, and creating a green entrepreneurial mindset to leverage competitiveness and support SDGs.

This study has certain limitations worth noting. First, participants are women-owned MSMEs located within tourist destinations, and findings may not be generalized to MSMEs in other sectors, contexts, or locales. Second, while survey data are useful, the cross-sectional data can result in perception bias, and do not consider potential dynamic changes affecting green entrepreneurial behavior and innovation in the long term. Third, we examined only the effect of green relational capital on green innovation and green entrepreneurial orientation; other variables, such as government policy support, technology access, or local culture, were not explored and may also moderate variations in sustainable performance.

AUTHOR CONTRIBUTIONS

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Writing – review & editing: M. Taufiq Noor Rokhman, Ratnawati, Rachma Yuliana.

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APPENDIX A

Table A1. Description of research instruments

No.	Variable, Indicator, and Item	References	
Green Relational Capital			
Customer Relations			
1	Establishing communication with customers regarding the importance of using environmentally friendly products or services	Mohd et al. (2019), Delgado-Verde et al. (2014), Cohen and Kaimenakis (2007)	
2	Maintaining good relationships with customers by providing transparent information about environmental commitments (e.g., eco-friendly packaging, waste reduction, or green products)		
Relationship With Suppliers			
3	Selecting suppliers who are committed to environmentally friendly practices (e.g., using green raw materials or minimizing waste)		
4	Establishing long-term collaborations with suppliers who support sustainable environmental management		
Relationship With Partners			
5	Establishing collaborations with business partners who are committed to environmentally friendly practices		
6	Developing partnerships that support the implementation of green innovation in business processes		
Green Innovation			
Green Product Innovation			
1	Using environmentally friendly materials to produce products	Yusliza et al. (2020), Liu and Lyu (2022)	
2	Creating new products designed to be more durable and not generate harmful waste for the environment		
Green Process Innovation			
3	Implementing energy- and water-efficient production processes to reduce environmental impact		
4	In the product manufacturing process, SMEs recycle waste before disposal		
Green Marketing Innovation			
5	Marketing products by emphasizing their environmentally friendly value to consumers		
6	Using promotional media that support sustainability, such as eco-friendly packaging or green campaigns		
Green Entrepreneurial Orientation			
Risk Taking			
1	Willing to take risks by trying new environmentally friendly materials, even if the costs are higher and the outcomes are uncertain	Faccin et al. (2017), Nazari et al. (2012), Okafor (2012), Rokhman et al. (2023)	
2	Prepared to face market uncertainties when launching innovative, eco-friendly craft products		
Proactive			
3	Always takes the initiative to offer eco-friendly craft products before being requested by consumers		
4	Actively seeks new opportunities to develop crafts that support environmental sustainability		
Confidence			
5	Has confidence in the ability to compete in the market with the production of eco-friendly craft products		
6	Believes that efforts to preserve the environment through craft products will bring long-term benefits to the business		
Openness			
7	Open to new ideas in using environmentally friendly materials for craft products		
8	Welcome feedback from consumers and business partners to improve the quality of eco-friendly crafts		
Sustainable Performance			
Environmental Sustainability			
1	Committed to reducing environmental impact through the use of eco-friendly materials in the production process	Rauch et al. (2009), Wiklund and Shepherd (2003), Guzman et al. (2017), Ratnawati et al. (2024)	
2	Consistently implements waste management practices that support environmental sustainability		
Social Sustainability			
3	Strives to create harmonious relationships with the local community through social activities or partnerships		
4	Engages the local community in the production or marketing process to enhance shared well-being		
Economic Sustainability			
5	Able to generate sustainable profits to support business continuity		
6	Strive to enhance competitiveness through cost efficiency and product innovation		