P-ISSN : 2685-4309
E-ISSN : 2597-9434
Jurnal Kajian Ekonomi dan Perbankan Syariah

Profit : Jurnal Kajian Ekonomi dan Perbankan Syariah
Vol. 9 No. 2 (2025) : 716-727
Available online at https://ejournal.unuja.ac.id/index.php/profit/index

DRIVING SUSTAINABLE PERFORMANCE: THE ROLE OF GREEN ENTREPRENEURIAL ORIENTATION AND INNOVATION CAPABILITY AMONG SMES

Dedi Joko Hermawan[1], Sudarmiatin[2], Puji Handayati[3], Naswan Suharsono[4]
[1,2,3,4] Universitas Negeri Malang, Indonesia
Email : dedi.joko.2504139@students.um.ac.id[1], sudarmatin.feg@um.ac.id[2], puji.handayani.feg@um.ac.id[3], naswan.suharsono.feg@um.ac.id[4]

DOI : https://doi.org/10.33650/profit.v9i1.13586		
Received: November 2025	Received: November 2025	Received: December 2025

Abstract :

Sustainability performance in micro, small, and medium enterprises (MSMEs) is a crucial element for strengthening regional economic competitiveness, including in Probolinggo City. Government policies that encourage business sustainability through capacity enhancement, innovation, adaptation, and the reinforcement of green entrepreneurial orientation position entrepreneurial orientation and innovation capability as strategic determinants of MSME continuity. Global demands related to environmental issues, advances in production technology, shifting consumer preferences, and the growing need for eco-friendly products increasingly require MSMEs to develop their innovation capabilities. Although most MSMEs have not yet attained the level of innovation capability and green entrepreneurial orientation found in larger enterprises, the demand to operate sustainably remains a priority. This study aims to analyze the relationship between green entrepreneurial orientation, innovation capability, and sustainability performance among MSMEs in Probolinggo City. The research involved 30 MSME actors as respondents, using questionnaires as the primary instrument and data processing through SmartPLS. The findings indicate that green entrepreneurial orientation has a positive and significant effect on innovation capability and sustainability performance. Innovation capability also significantly influences sustainability performance; however, it does not mediate the relationship between green entrepreneurial orientation and sustainability performance.

Keywords : *Green Entrepreneurial Orientation, Innovation Capability And Sustainable Performance.*

INTRODUCTION

MSMEs in Probolinggo City face increasingly dynamic competition that requires mastery and effective utilization of both physical and non-physical strategic resources. Non-physical resources such as creativity, adaptability, and innovation serve as essential pillars because they are difficult to imitate, rare, and capable of creating sustainable competitive advantages. The firm's ability to manage these resources directly influences business performance. In the MSME context, the ability to foster an innovative climate is strongly shaped by

internal innovation capabilities. Innovation capability offers the potential to enhance economic value, increase profitability, and strengthen business sustainability (Noordin & Mohtar, 2013). Numerous studies have demonstrated that innovation capability is a significant driver in improving business performance (O'Cass et al., 2013; Sulistyo & Siyamtinah, 2016; Saunila, 2017).

Innovation capability reflects an organization's ability to transform ideas or concepts into new products, processes, or methods that generate economic benefits. This capability enables creative ideas to be converted into added value that can increase revenue, enhance competitive positioning, and ultimately boost overall organizational performance (Eisenhardt, 1989).

More broadly, innovation capability is not only related to generating innovations but also encompasses a series of processes starting from opportunity identification, idea exploration, development of new technologies or methods, to implementation that delivers real value to customers and the organization. This capability acts as a bridge between creativity and business success, as organizations that innovate consistently tend to be more adaptive in responding to environmental changes, competitive pressures, and market dynamics. In the context of modern organizations, innovation capability is also an important indicator of long-term competitiveness. Organizations with strong innovation capability are better equipped to leverage technological advancements, address external threats, create more effective problem-solving strategies, and respond quickly and accurately to consumer needs. Thus, innovation capability functions not only as a driver of growth but also as a foundation for building sustainable business models.

In addition to innovation, another strategic factor is entrepreneurial orientation. Entrepreneurial orientation has been proven to enhance organizational performance through proactive behavior, autonomy, and risk-taking tendencies (Nasir et al., 2017; Ndubisi & Agarwal, 2014). In the context of MSMEs in Probolinggo, green entrepreneurial orientation has become increasingly relevant due to rising demands for environmentally friendly products and shifting consumer behavior.

Sustainability performance is a multidimensional concept that can be evaluated through various indicators depending on the focus of the research or the purpose of observation. In general, performance refers to the outcomes achieved from executing certain tasks, functions, or activities within a specific period. In the context of business sustainability, performance can be assessed at the individual, group, or organizational level. Common dimensions used to measure sustainability performance include financial performance, operational or production efficiency, and achievements in marketing functions (Noordin & Mochtar, 2013). More comprehensively, sustainability performance reflects not only short-term output but also the organization's ability to maintain stable, consistent, and adaptive performance amid environmental changes. The sustainability dimension emphasizes that organizations must effectively manage their resources, ensure efficient internal processes, and create long-term value for customers and stakeholders.

Beyond economic outcomes, sustainability in many modern organizations also encompasses social and environmental aspects. This reflects the expectation that organizations not only pursue profitability but also consider employee well-being, community relations, and the environmental impact of their operations. Therefore, sustainability performance is viewed as a comprehensive indicator that represents a balance between financial achievement, process efficiency, market competitiveness, and long-term sustainability awareness. Organizations with strong sustainability performance are generally more capable of maintaining competitive advantages, adapting to market dynamics, and minimizing external risks that may disrupt business continuity.

Entrepreneurial orientation can be understood as a set of capabilities that reflect creativity and innovation, serving as a foundation for identifying and exploiting business opportunities. Innovative behavior indicates a tendency among entrepreneurs to experiment with new ideas, develop more efficient production methods, or create products and services that differ from existing ones—either to meet current market needs or to enter new market segments. Overall, entrepreneurial orientation plays an essential role in business continuity because it serves as a fundamental strategy that helps organizations strengthen their competitive position. With this orientation, business actors become more willing to take risks, more responsive to market dynamics, and better prepared to create sustainable competitive advantages (Porter, 2008). In an era of global competition and rising environmental awareness, green entrepreneurial orientation has become increasingly relevant as organizations are expected not only to survive but also to ensure that their business activities generate positive impacts on the environment and society.

The Probolinggo City Government has also actively supported the strengthening of MSMEs through training, mentoring, and business facilitation programs that emphasize environmental resilience and product innovation. This opens opportunities to examine the extent to which green entrepreneurial orientation influences innovation capability and sustainability performance among local MSMEs.

RESEARCH METHOD

This study employs a positivist approach with a quantitative method to examine the causal relationships among Green Entrepreneurial Orientation, Innovation Capability, and Sustainability Performance in MSMEs in Probolinggo City. The sample consists of 30 MSMEs selected through purposive sampling based on specific criteria, such as years of operation and involvement in entrepreneurial activities. Primary data were collected using a five-point Likert-scale questionnaire developed from the indicators of each variable and evaluated through a construct feasibility assessment. In addition to the primary data, the study also utilized secondary data, including MSME profiles and supporting literature, to strengthen the analysis. The data obtained were analyzed using SmartPLS with a Partial Least Squares–based Structural

Equation Modeling (SEM-PLS) approach. The analysis was conducted in two main stages: evaluating the outer model to assess indicator validity and reliability, and evaluating the inner model to determine the strength of the relationships among variables using R^2, Q^2, and path coefficients. Significance testing was carried out using the bootstrapping technique to determine whether the relationships among variables were statistically significant. The results of this analysis served as the basis for hypothesis testing and drawing the study's conclusions.

FINDINGS AND DISCUSSION

Reliability and Validity Testing

Reliability and validity tests were conducted to ensure that the constructs in the model met the required measurement criteria. The evaluation included Cronbach's Alpha, Composite Reliability, and Average Variance Extracted (AVE) to assess internal consistency and convergent validity. The complete results of the analysis are presented in the following table.

Tabel 1.
Construct Reliability & Validity

Variable	Cronbach Alpha	Composite Reliability	Average Variance Extracted (AVE)
Green Entrepreneurial Orientation (X1)	0,865	0,893	0,548
Innovation Capability (Y1)	0,833	0,889	0,701
Sustainable Performance (Y2)	0,924	0,961	0,928

Source: Processed data from SmartPLS output

Table 1 presents the results of the reliability and validity tests for each construct in the study. Based on the values of Cronbach's Alpha, Composite Reliability, and Average Variance Extracted (AVE), all variables—Green Entrepreneurial Orientation, Innovation Capability, and Sustainability Performance—meet the criteria for good measurement quality. The Cronbach's Alpha values for the three constructs exceed 0.80, with 0.865 for Green Entrepreneurial Orientation, 0.833 for Innovation Capability, and 0.924 for Sustainability Performance. These values indicate strong internal consistency across all variables.

Meanwhile, the Composite Reliability values for all variables also surpass the minimum threshold of 0.70, with Green Entrepreneurial Orientation at 0.893, Innovation Capability at 0.889, and Sustainability Performance at 0.961. This confirms that the model demonstrates excellent composite reliability. Additionally, the AVE values for each construct—0.548 for Green Entrepreneurial Orientation, 0.701 for Innovation Capability, and 0.928 for Sustainability Performance—are all above 0.50, indicating that each variable explains more than half of the variance of its indicators. Thus, Table 1 confirms that all variables in the model satisfy the requirements for convergent validity

and reliability, allowing the analysis to proceed to the next stage.

Discriminant validity is used to ensure that each construct is distinctly different from the others within the model. The assessment was conducted using latent variable correlations and comparisons of the square roots of AVE values. The results of this analysis are presented in Table 2.

Tabel 2.
Discriminant Validity

Variable	Green Entrepreneurial (X1)	Innovation Capability (Y1)	Sustainable Performance (Y2)
Green Entrepreneurial (X1)	0,722		
Innovation Capability (Y1)	0,584	0,847	
Sustainable Performance (Y2)	0,709	0,846	0,958

Source: Processed data from SmartPLS output

Table 2 presents the results of the discriminant validity test, which demonstrates the ability of each construct to distinguish itself from other constructs within the model. The correlation values between indicators and their corresponding latent variables are higher than their correlations with other variables. For example, the loading value of Green Entrepreneurial Orientation on its construct (X1) reaches 0,722, whereas its correlations with constructs Y1 and Y2 are notably lower. A similar pattern is observed for Innovation Capability, which shows its highest correlation at 0.841, and for Sustainability Performance, which records a loading value of 0.958. These findings confirm that each construct possesses distinct measurement characteristics and does not overlap substantially with the others. Therefore, the model satisfies the criteria for discriminant validity, indicating that the indicators accurately measure their intended variables.

Coefficient of Determination (R-Square)

The R-Square value is used to assess the model's ability to explain the dependent variables. A higher R-Square value indicates a stronger predictive power of the independent variables toward the endogenous variables. The R-Square calculation results are presented in Table 3.

Tabel 3.
R-square

Variable	R-square
Innovation Capability (Y1)	0,329
Sustainable Performance (Y2)	0,799

Source: Processed data from SmartPLS output

Table 3 displays the R-Square values, which indicate the extent to which the independent variables explain the dependent variables in this study. Innovation Capability has an R^2 value of 0.329, meaning that 32.9% of its variance is explained by Green Entrepreneurial Orientation, while the

remaining portion is influenced by other factors outside the model. Meanwhile, Sustainability Performance shows an R^2 value of 0.799. This indicates that 79.9% of the variation in MSMEs' sustainability performance can be explained by the combined influence of Green Entrepreneurial Orientation and Innovation Capability. These results demonstrate strong predictive power and confirm that the structural model is appropriate for further analysis.

Path Coefficient Analysis (Direct Effects)

Path coefficients are used to assess the direct effects among latent variables in the structural model. This analysis was performed using a bootstrapping procedure in SEM-PLS to obtain T-statistic and p-value results. The complete findings are presented in Table 4.

Tabel 4.
Indirect Effect Coefficient of Variables

Variable Relationship	Original Sample	T Statistic	P Values
Green Entrepreneurial Orientation -> Sustainable Performance	0,301	5,122	0,000
Green Entrepreneurial Orientation -> Innovation Capability	0,574	6,411	0,000
Innovation Capability -> Sustainable Performance	0,671	7,983	0,000

Source: Processed data from SmartPLS output

Table 4 presents the strength of the direct relationships among variables in the model. The effect of Green Entrepreneurial Orientation on Innovation Capability shows a coefficient of 0.574 with a T-statistic of 6.411, indicating a positive and significant influence. This means that the higher the level of green entrepreneurial orientation among MSMEs, the stronger their innovation capability becomes. In addition, Green Entrepreneurial Orientation also has a direct effect on Sustainability Performance, with a coefficient value of 0.301 and a T-statistic of 5.122. Innovation Capability significantly affects Sustainability Performance as well, with a coefficient of 0.671 and a T-statistic of 7.983. All p-values are reported at 0.000, confirming that the relationships among variables are statistically significant at the 95% confidence level. Thus, all three main hypotheses in this study are supported.

Indirect Effects (Mediation Analysis)

The mediation analysis was performed to examine whether Innovation Capability mediates the relationship between Green Entrepreneurial Orientation and Sustainability Performance. The results of the indirect effects analysis are presented in Table 5.

Tabel 5.
Coefficient of Variable Influence

Variable Relationship	Original Sample	Standar Deviatio	T Statistic	P Values

		n		
Green Entrepreneurial Orientation -> Sustainable Performance	0,383	0,045	8,433	0,000

Source: Processed data from SmartPLS output

Table 5 explains the indirect relationship between Green Entrepreneurial Orientation and Sustainability Performance through Innovation Capability. The indirect effect coefficient is recorded at 0.383, with a T-statistic of 8.433, indicating that the relationship is statistically significant. Although the indirect effect is significant, comparison with the direct effect shows that the T-statistic of the direct relationship is lower. This indicates that Innovation Capability does not function as a full mediator and is not sufficiently strong to serve as a valid mediator between Green Entrepreneurial Orientation and Sustainability Performance. These findings confirm that although innovation contributes to performance improvement, the role of green entrepreneurial orientation remains dominant.

Discussion

The Influence of Green Entrepreneurial Orientation on Innovation Capability

The findings show that Green Entrepreneurial Orientation has a positive and significant effect on Innovation Capability, with a coefficient of 0.574 and a T-statistic of 6.411. This result indicates that the stronger the green entrepreneurial orientation among MSMEs in Probolinggo City, the higher their ability to innovate. An entrepreneurial mindset grounded in environmental concern motivates business actors to be more creative in developing eco-friendly products, improving process efficiency, and designing new work methods that align with modern market demands.

Recent studies support this observation. Research by Chen et al. (2023) explains that green entrepreneurial orientation directly enhances innovation capability through internal motivation to produce low-emission and environmentally friendly products. Similarly, Shafique and Kalyar (2022) found that SMEs with a strong green entrepreneurial orientation tend to adopt green technology-based innovations more quickly, thereby improving creativity and innovation outcomes. These contemporary findings empirically reinforce the notion that green entrepreneurial orientation is a key driver in shaping innovation capability.

Green entrepreneurial orientation is not merely an attitude of environmental awareness, but also reflects risk-taking behavior, proactive initiatives, and a consistent tendency to innovate. When MSME actors possess ecological awareness, they are encouraged to search for new solutions that not only generate profit but also reduce environmental impacts. This proactive stance strengthens innovation capability, whether in product design, process improvement, or internal management practices. A recent study by Li and Zheng (2024) highlights that green proactiveness strongly correlates with

innovation capability, particularly among small enterprises adapting to global sustainability pressures.

The Influence of Green Entrepreneurial Orientation on Sustainability Performance

The influence of Green Entrepreneurial Orientation on Sustainability Performance is also confirmed to be significant, with a coefficient of 0.301 and a T-statistic of 5.122. This indicates that MSMEs with a strong green entrepreneurial orientation tend to demonstrate better and more sustainable performance across financial, operational, and marketing dimensions.

Recent research also reinforces this finding. Kraus et al. (2023) reported that green entrepreneurial orientation directly improves both economic and environmental performance, especially in small businesses operating in developing regions. Likewise, Rahman and Rosli (2024) found that SMEs implementing green business practices experience increased market reputation and consumer loyalty, which support long-term sustainability performance.

Green entrepreneurial orientation contributes to sustainability performance in two main ways. First, MSMEs with such orientation are more responsive to environmental changes and market trends that increasingly demand green-compliant products. Second, it encourages the adoption of efficient and low-waste business strategies, ultimately boosting productivity and enhancing reputation. Modern consumers increasingly prefer products perceived as safer, more ethical, and sustainable, giving green-oriented MSMEs a competitive advantage. Vu and Le (2023) also highlighted that Southeast Asian consumers show a strong preference for products from businesses committed to sustainability.

The Influence of Innovation Capability on Sustainability Performance

Innovation Capability significantly influences Sustainability Performance, supported by a coefficient of 0.671 and a T-statistic of 7.983. This means that the higher the innovation capability of MSMEs, the greater their opportunity to achieve sustainable performance. Innovation capability enables businesses to update products, improve quality, modify marketing strategies, and adapt to industry dynamics.

Recent studies consistently support this relationship. Costa et al. (2023) stated that innovation capability directly enhances sustainability performance through process efficiency and reduction of production waste. Additionally, Haseeb et al. (2024) emphasized that product and process innovation are crucial for maintaining the sustainability of small businesses, especially in fluctuating market conditions.

Innovative MSMEs are more capable of leveraging new opportunities, responding to shifting consumer preferences, and competing more adaptively. Innovation also increases operational efficiency and enables MSMEs to produce higher value-added products. Hence, the findings confirm that innovation is a key element driving long-term business sustainability.

The Mediating Role of Innovation Capability

The mediation analysis shows that Innovation Capability does not serve

as a mediator in the relationship between Green Entrepreneurial Orientation and Sustainability Performance. Although the indirect effect (T-statistic 8.433) is significant, it does not meet the criteria for full mediation because the direct effect remains significant.

Recent research by Weng and Lin (2024) reported a similar pattern: green entrepreneurial orientation among SMEs in Southeast Asia exerts a direct influence on sustainability performance, while innovation enhances—but does not fully bridge—the relationship. In line with this, Mousa and Othman (2023) emphasized that a green mindset and internal ecological values often play a more dominant role in determining business sustainability than innovation capability alone.

This suggests that the mindset, values, and commitment of MSMEs toward green entrepreneurial principles have a more immediate impact on sustainability performance compared with innovation efforts alone. MSMEs with strong green orientation tend to consistently implement eco-friendly production practices, resource efficiency, and quality sustainability measures.

Theoretical and Practical Implications

Theoretically, these findings strengthen the model linking green entrepreneurial orientation, innovation, and sustainability performance in the context of MSMEs. The study confirms that entrepreneurial orientation not only stimulates innovation but also directly shapes sustainability outcomes.

Practically, these findings are highly relevant for MSMEs in Probolinggo City. Businesses seeking to enhance sustainability performance should strengthen their green entrepreneurial orientation through environmental awareness programs, green innovation training, and the adoption of eco-friendly business strategies. Local government and related institutions can leverage these insights to develop more targeted MSME development programs, such as innovation incubation initiatives, green production training, and incentive schemes for MSMEs adopting sustainability principles.

CONCLUSION

This study confirms that Green Entrepreneurial Orientation (GEO) plays a crucial role in improving Innovation Capability and Sustainability Performance among MSMEs in Probolinggo City. GEO has been shown to have a positive and significant impact on both innovation capability and sustainability performance. Furthermore, Innovation Capability also significantly impacts Sustainability Performance, indicating that MSMEs' ability to innovate can strengthen their sustainable performance.

However, the mediation analysis showed that Innovation Capability did not mediate the relationship between GEO and Sustainability Performance. This indicates that GEO's influence on MSME sustainability occurs directly, not through innovation capability. Thus, green entrepreneurial orientation is the dominant factor directly encouraging MSMEs to adopt environmentally friendly business practices, increase efficiency, and strengthen their sustainable

competitiveness.

REFERENCES

Chen, Y., Lin, R., & Song, M. (2023). Green entrepreneurial orientation and firm innovation: Evidence from sustainable small businesses. Journal of Cleaner Production, 422, 138–149.

Costa, E., Soares, A., & Sousa, J. (2023). Innovation capability and sustainable performance in small enterprises. Sustainability, 15(4), 1121.

Eisenhardt, K. M. (1989). Building theories from case study research. Academy of Management Review, 14(4), 532–550.

Haseeb, M., Hussain, H., Kot, S., & Iqbal, J. (2024). The role of innovation in enhancing sustainability performance of SMEs. Sustainable Development, 32(1), 88–102.

Kraus, S., Rehman, S., & García, F. (2023). Green entrepreneurial orientation and sustainability outcomes in SMEs. Business Strategy and the Environment, 32(2), 455–468.

Li, X., & Zheng, Y. (2024). Green proactiveness and innovation capability in small firms: A sustainability perspective. Journal of Business Research, 168, 114–126.

Mousa, S., & Othman, M. (2023). Environmental values, green strategy, and sustainable firm performance. Environmental Science and Pollution Research, 30(12), 14221–14236.

Nasir, W., Halim, H., & Khalid, K. (2017). Entrepreneurial orientation and firm performance: The mediating role of innovation. International Journal of Business and Society, 18(3), 503–512.

Ndubisi, N., & Agarwal, J. (2014). Quality performance of SMEs: The role of entrepreneurial orientation and market orientation. International Journal of Quality & Reliability Management, 31(6), 626–646.

Noordin, A., & Mohtar, S. (2013). Innovation capability and firm performance among SMEs. Asian Social Science, 9(9), 47–54.

O'Cass, A., Song, M., & Yuan, L. (2013). Dynamic capabilities, marketing innovation, and firm performance. Industrial Marketing Management, 42(8), 1275–1284.

Porter, M. E. (2008). Competitive advantage: Creating and sustaining superior performance. Free Press.

Rahman, A., & Rosli, M. (2024). Green business practices and sustainable performance in SMEs. Journal of Small Business Management, 62(1), 78–95.

Saunila, M. (2017). Innovation capability and performance: Knowledge-based view. European Journal of Innovation Management, 20(3), 411–429.

Shafique, I., & Kalyar, M. (2022). Green entrepreneurial orientation and innovation adoption in SMEs. Journal of Small Business & Entrepreneurship, 34(7), 897–917.

Sulistyo, H., & Siyamtinah, S. (2016). Innovation capability of SMEs: The role of entrepreneurial orientation. Academy of Strategic Management Journal,

15(3), 56–66.
Vu, H., & Le, T. (2023). Sustainable consumer behavior in Southeast Asia: Implications for green-oriented SMEs. Asia Pacific Journal of Marketing and Logistics, 35(5), 1021–1042.
Weng, P., & Lin, Y. (2024). Green entrepreneurship and sustainable performance: The mediating role of innovation. Sustainability, 16(2), 233.