The Indonesian MSME Compass: Navigating Sustainable Performance with Innovation, Dynamic Capabilities, and Green Entrepreneurial Mindset

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ABSTRACT

This study investigates the role of innovation (INV), dynamic capabilities (DCS), and green entrepreneurial orientation (GEO) in enhancing the sustainability performance of micro, small, and medium enterprises (MSMEs) in Indonesia. The study uses quantitative methods, with primary data using questionnaire through google form with a total of 162 respondents consisted of owners, directors, managers, and supervisors from MSMEs in Jakarta and Tangerang area (Indonesia). Data processed using SPSS and Smart PLS as a stastistical tool. The study finds that innovation, dynamic capabilities, and green entrepreneurial orientation significantly influence sustainability performance. Based on these insights, this study recommends that MSMEs should prioritize on strengthening team dynamic capabilities to foster resilience, enhancing innovation to improve competitiveness, and integrating green entrepreneurial orientation into their strategic practices. Collectively, these efforts can substantially improve sustainability performance across economic, environmental, and social dimensions. By focusing on sustainability performance, MSMEs play a pivotal role in reducing income disparities and supporting national economic growth, thereby directly contributing directly to the realization of the United Nations Sustainable Development Goals, particularly SDG 8 on Decent Work and Economic Growth.

Keywords: Dynamic Capabilities, Green Entrepreneurial Orientation, Innovation, Sustainability Performance, Sustainable Development Goals
JEL Classifications: M13, O35, O44, Q56

1. INTRODUCTION

In today's global landscape, sustainability is becoming an urgent call that can no longer be ignored as environmental and economic challenges grow more critical. According to the World Economic Forum (2025), extreme weather events, biodiversity loss, and environmental degradation are three major risks that continue to disrupt the global economic system. Reflecting this uncertainty, the International Monetary Fund (2025) projects that global economic growth will slow to just 3.3% in both 2025 and 2026. To address these global challenges, it is important to identify which sectors can contribute significantly to sustainable solutions. One such sector is micro, small, and medium enterprises (MSMEs), which play a vital role as the backbone and primary driver of economic growth in many countries (Bassem, 2023). This importance is highlighted by data from the World Bank (2019), which shows that MSMEs represent around 90% of all businesses for more than 50% of global employment.

In Indonesia, there are approximately 65 million MSMEs, contributing 60% to the country's GDP and employing 97% of the total workforce (Indonesian Chamber of Commerce and Industry, 2024). This highlights the significant role of MSMEs in Indonesia's economic development. Despite their huge contribution, they continue to face persistent structural challenges that hinder their potential as a main engine of national economic growth (Sisay et al., 2025). These challenges include limited business knowledge and skills, limited access to capital, and increasing

competition from imported goods which significantly affect MSMEs' ability to expand operations and enhance productivity (Satpathy et al., 2025). According to data from Statista (2025), the biggest obstacles that make them hard from scaling their businesses is the limited access to formal financing, as many businesses struggle with collateral requirements and complex loan application procedures. These issues are mainly caused by limited human resource capacity and knowledge, affecting MSMEs' ability to improve productivity and sustainability (Agarwal et al., 2023).

As a result, achieving high sustainability performance has become a significant challenge for SMEs in Indonesia. Hence, it is crucial to explore ways to enhance the sustainability performance of MSMEs, since this is closely aligned with Sustainable Development Goal 8 (Decent Work and Economic Growth). By improving sustainability and productivity, MSMEs can minimize income disparities and provide job opportunities to strengthen the national economy growth (Sisay et al., 2025). This is supported by research from Endris and Kassegn (2022), which emphasizes that MSMEs play a crucial role in improving living standards, attaining sustainable development, and driving economic growth. It is possible because MSMEs absorb a very large number of workers and are spread across all regions thus they can provide job opportunities for millions of people, including those with limited skills. Therefore, there is an urgent need for further research of what factors that can empower MSMEs to overcome their challenges, accelerate their contributions to the SDGs, and play a more impactful role in advancing Indonesia's economic development. Some of these factors are Innovation (Antara et al., 2024), Dynamic Capabilities (Eikelenboom and de Jong, 2019), and Green Entrepreneurial Orientation (Zhang et al., 2024).

One of the strategic drivers to support this economic development is innovation, which plays a significant key for every business to improve business performance and help businesses develop sustainably for the long term (Tran and Hou, 2024). Innovation describes how well a business can generate and execute innovative ideas that lead to unique and differentiated offerings, giving it a competitive edge in the market (Wijaya et al., 2025). According to Wang et al. (2025), innovation has positively influenced sustainable performance because the implementation of innovation requires adapting value creation, delivery, and capture systems to support the green economy during its transformation. By innovating their businesses, enterprises can better adopt sustainable practices, maximize resource efficiency, minimize waste, and explore new market opportunities. This is supported by research from Antara et al. (2024), showing that SPE is influenced by innovation, particularly when innovation is implemented with an environmental focus and supports long-term sustainability efforts. Moreover, recent studies show that innovation positively and significantly impacts SP by improving innovation speed and operational efficiency, which supports both corporate sustainability and economic success (Shah et al., 2024). Most previous studies (Antara et al., 2024; Chen and Wang, 2024; Surahman et al., 2023; Tran and Hou, 2024; Wang et al., 2025) have used innovation as a mediating variable that explains how things like entrepreneurial orientation or dynamic capabilities affect sustainable performance. However, there are only a limited

number of studies that explore innovation as an independent variable that directly impacts sustainable performance. This creates a research gap in understanding how innovation can independently support sustainability outcomes, especially in the context of SMEs. Addressing this gap is crucial to determine the extent of innovation's direct impact on sustainability performance without relying on other variables (Shah, 2024), as innovation has been proven could encourage MSMEs to continuously improve in various areas, such as developing more environmentally friendly products, which in turn can supports and enhances their sustainable performance.

Another important point of this study is that helping future research understand more clearly how dynamic capabilities are connected to the sustainability performance of SMEs. Dynamic capabilities are the ability of businesses to integrate and reconstruct corporate resources in the rapidly changing external environment (Felsberger et al., 2022). In several studies, like Mousavi et al. (2018) found a positive effect from dynamic capabilities on sustainability because MSMEs need sensing capabilities to analyse industry trends and the environmental impacts of their business activities. In addition, they also stated that seizing capabilities are essential to improve competencies and resources from internal and external to achieve marketplace acceptance. Furthermore, according to (Asumah et al., 2024), it shows that dynamic capabilities has a significant impact on sustainable performance because DCS are essential for enabling businesses to adapt quickly and create on-going changes so MSMEs are able to meet the green demands of customers and the trends of the industry. However, not all studies present consistent positive findings, which raise important questions for researchers seeking to understand the role of dynamic capabilities in driving sustainability. One example is the study by Eikelenboom et al. (2019), which found a negative relationship between internal integrative dynamic capabilities (DCS) and environmental performance. This is because a high level of internal integration in MSMEs may lead employees to resist change and exhibit limited out-of-the-box thinking, thereby hindering the company's ability to implement change and enhance sustainability performance. Moreover, not all DCS dimensions equally contribute to improved SME performance, as findings suggest that capabilities like sensing may have insignificant effects (Hernández-Linares et al., 2021) because DCS does not necessarily lead to superior performance. A similar complexity arises where DCS may not lead to improved sustainability outcomes unless they are effectively linked to strategy execution and adapted to firm-specific conditions (Liang et al., 2022).

Besides dynamic capabilities, another important factor that can improve sustainability in MSMEs is Green Entrepreneurial Orientation (GEO). According to Zhang et al. (2024), GEO is a strategic orientation that merges green entrepreneurship with entrepreneurial principles—emphasizing innovation, proactiveness, and risk-taking in environmentally sustainable business practices to achieve both ecological and economic gains. Several businesses that demonstrate a green entrepreneurial attitude by seeking opportunities to develop environmentally friendly products will benefit both the business and the environment. Thus, GEO has a positive effect on sustainable performance (Wang et al.,

2025). This is in line with the results of the research by Makhloufi et al. (2022) which show that GEO has a significant positive effect on SP because enterpreneurs stated that green practices are the primary leading driver of environmental opportunities. Moreover, research from Antara et al. (2024) also indicates that adopting a GEO mindset can help prevent environmental pollution, thereby enhancing sustainable performance and supporting the long-term goal of building a sustainable SME business. However, the opposite result is shown in the research of Afum et al. (2023) which stated that green entrepreneurial orientation has no effect on sustainability performance because MSMEs may engage in high-risk behaviors such as investing in sustainable practices that have uncertain returns, thus affecting their performance.

Based on the background and findings from previous studies, it is stated that various factors may influence sustainability performance (SPE), both positively and negatively. Given the existing gaps in prior research, this study has research objectives to investigate the direct impact of innovation, dynamic capabilities, and green entrepreneurial orientation on MSME's sustainability performance. By examining these factors as independent variables, this study seeks to understand how each can independently contribute to sustainable performance. Additionally, it aims to identify which strategic orientations and organizational capabilities are most effective in overcoming structural barriers faced by MSMEs. The findings are expected to provide actionable insights for policymakers, business owners, and ecosystem enablers in strengthening the long-term sustainability of MSMEs. In conclusion, this research contributes to filling existing knowledge gaps and supporting Indonesia's progress toward achieving Sustainable Development Goals. The research studies will be structured into several parts as follows: Part 2 stated the grand theory and previous studies, Part 3 outlines the methodology, measurement methods, and techniques employed in this study, Part 4 presents the results of the data analysis, supported by detailed explanations, and lastly, Part 5 concludes the research with recommendations for future studies.

2. LITERATURE REVIEW

2.1. Resource-Based View (RBV) Theory
The Resource-Based View (RBV) theory, introduced by Barney (1991), focuses on managing internal resources effectively to achieve a sustained competitive advantage. RBV also involves an internal analysis of a firm's resources, those that are valuable, rare, inimitable, and non-substitutable, as a foundation for enhancing sustainability performance (Mailani et al., 2024). In the context of Small and Medium Enterprises (SMEs), RBV emphasizes leveraging internal capabilities such as human capital, organizational knowledge, and relational resources to improve sustainable performance (Andersén, 2021). Researchers have noted that financial resources may support short-term profitability, however, they are insufficient to ensure long-term survival; instead, intangible assets like innovation capacity and marketing skills are crucial (Zahra, 2021). RBV also recognizes the significant influence of the external environment, suggesting that natural resources and green strategies can further improve organizational performance and help sustain competitive advantages (Hart

and Dowell, 2011). Therefore, integrating RBV theory with sustainability perspectives allows firms, especially SMEs, to create value that aligns economic goals with environmental and social responsibilities which enhance their sustainable performance.

2.2. Entrepreneurial Theory
Entrepreneurial Orientation Theory, which was introduced by Miller (2011), is a strategic decision-making process of business leaders that emphasizes innovation, initiative, and risk-taking as important traits. Building on this theory, Guo et al. (2020) define entrepreneurial orientation as a set of practical actions or decision-making activities that enable enterprises to create new opportunities and pursue competitive behaviors. According to the VRIO framework (valuable, rare, inimitable, and non-substitutable resources), entrepreneurial orientation reflects how organizations are structured to maximize opportunities effectively (Wiklund and Shepherd, 2003). Cultivating a strong entrepreneurial theory not only can enhance MSMEs competitive advantage but also can maintain their sustainable performance through continuous innovation and proactive strategic initiatives. This proactive strategic initiatives in entrepreneurial theory enables MSMEs to help create opportunities for long term growth (Zhang et al., 2024). By embracing innovation, MSMEs with high entrepreneurial orientation are better positioned to develop green products and respond agilely to evolving environmental regulation and social expectations. Therefore, allows MSMEs to create new value propositions that align economic objectives with environmental and social responsibility, thereby enhancing their overall sustainable performance.

2.3. Innovation and Sustainability Performance
There is a connection between entrepreneurial theory and innovation when entrepreneurs as individuals maximize market opportunities through innovative activities and the development of new products. According to Guo et al. (2020) innovations—such as new production methods, markets, and organizational forms—as well as changes in resource allocation patterns and the creation of new capabilities, can support entrepreneurship by opening up new market opportunities. This statement shows that entrepreneurial theory can drive various types of innovation within a business. In addition, there are clear differences between entrepreneurs who possess an entrepreneurial orientation and those who focus solely on profit. From the perspective of entrepreneurial theory, entrepreneurs with an entrepreneurial orientation are more likely to achieve economic goals because they adopt a holistic strategic approach that includes innovation, initiative, and risk-taking (Zhang, 2024). Therefore, this entrepreneurial theory can encourage MSMEs to take responsibility for the environment and adopt innovative practices in their strategies, products, services, or business models.

This is supported by research conducted by Wang et al. (2025) showing that innovation plays a significant influence in enhancing sustainable performance because it involves adapting value creation, delivery, and capture systems, which are essential for supporting the transition toward a green economy. By embracing innovation, companies are better equipped to adopt sustainable practices, improve resource efficiency, reduce waste, and explore

new market opportunities (Antara et al., 2024). Recent studies also confirm that innovation has a positive and significant impact on sustainable performance by accelerating innovation speed and operational efficiency, ultimately supporting both corporate sustainability and economic success (Shah et al., 2024). Furthermore, innovation is widely recognized as a key driver in achieving sustainability performance—social, economic, and environmental—while also strengthening organizational competitive advantage (Tamayo-Orbegozo et al., 2017). This is supported by the results of the study by Cong (2023), which show that innovation can improve sustainability performance because it can boost overall performance, keep ahead of the competition, and turn a business into profit. According to Baquero (2024), innovation can support sustainable performance by driving green initiatives, including the use of renewable energy, the adoption of efficient practices, and the initiative of sustainable products and services. These efforts can result in achieving competitive advantages and reducing operational expenses. Based on previous research showing that INV has a positive and significant effect on SPE, the following hypothesis can be proposed:

H_1: Innovation has a positive effect on sustainability performance.

2.4. Dynamic Capabilities and Sustainability Performance

From the perspective of Resource-Based View (RBV) theory, DCS are considered as valuable organizational resources that contribute to long-term organizational performance and strategic differentiation (Huang and Xiao, 2023). Furthermore, the RBV theory emphasizes that DCS, as internal resources, allow companies to secure higher levels of profitability compared to their competitors (Pereira-Moliner et al., 2021). Based on this literature, DCS act as a crucial extension of RBV, showing how firms can actively sense, seize, and reconfigure their resources to adapt to environmental changes and create new advantages (Dejardin et al., 2023). This is also supported by research from Teece (2014) which states that DCS highlights the importance of dynamic processes that enable continuous strategic renewal. Therefore, dynamic capabilities enrich the Resource-Based View (RBV) theory by adding a dimension of adaptation to show how entrepreneurs can dynamically manage their resources to achieve sustainable performance.

This is supported by several studies that have emphasized the crucial role of dynamic capabilities in enhancing sustainability performance. Mousavi et al. (2018) identified a positive relationship between dynamic capabilities and overall sustainability outcomes because DCS mindset can create, develop, or modify their resource base to respond adaptively and innovatively to new challenges and opportunities. In line with this research, Felsberger et al. (2022) demonstrated that the integration of dynamic capabilities within Industry 4.0 frameworks significantly influences economic, environmental, and social dimensions. Similar studies by Asumah et al. (2024) also confirm that to thrive in an unpredictable climate and business competition, firms must continuously update their capabilities using existing resources and talents to enhance their sustainable performance. This is supported by the results of the study by Eikelenboom (2019) which shows dynamic capabilities

have a significant role in enhancing sustainability performance because DCS mindset can assist MSMEs to constantly integrate the preferences of their stakeholders and develop strategic solutions for sustainability. Based on previous research showing that DCS has a positive and significant effect on SPE, the following hypothesis can be proposed:

H_2: Dynamic capabilities has a positive effect on sustainability performance.

2.5. Green Entrepreneurial Orientation and Sustainability Performance

The Resource-Based View (RBV) theory provides a strong foundational framework for understanding how GEO can generate sustainable competitive advantage for an organization (Baquero, 2024). From the perspective of the RBV theory, GEO can be perceived as a unique and intangible organizational resource that enables firms to identify and exploit green business opportunities (Makhloufi et al., 2022). This orientation help the development of specific resources such as deep environmental knowledge, the use of eco-friendly technologies, and the relationships with sustainability-oriented stakeholders, all of which are challenging for competitors to replicate (Bassem, 2023). Moreover, based on RBV theory, GEO should be viewed as a unique strategic decision-making model and resources that can maximize eco-friendly business opportunity based on the consideration of risks and benefits (Guo et al., 2020). Therefore, through the development of GEO, entrepreneurs can build a unique set of resources and capabilities that support both long-term sustainability and competitive advantage.

Several studies indicate that Green Entrepreneurial Orientation (GEO), which focuses on developing environmentally friendly products, can support sustainable performance of MSMEs. Based on the research from Antara et al. (2024), adopting a GEO mindset helps prevent environmental pollution, thereby improving sustainable performance and supporting the long-term goal of building MSMEs. Asad et al. (2023) also stated that a green entrepreneurial orientation enhances sustainable performance by helping both the improvement of economic value and the mitigation of environmental deterioration. Similarly, Makhloufi et al. (2023) also emphasize that businesses with a strong green orientation tend to experience both reduced environmental impact and increased competitive advantage. These findings are consistent with those of Zhang et al. (2024), who found that GEO encourages greater employee commitment to green initiatives and strengthens firms' environmental knowledge, leading to improved sustainability performance. Lastly, according to Wang et al. (2025), a green entrepreneurial orientation positively impacts sustainable performance by encouraging MSMEs to identify opportunities for developing environmentally friendly products and adapting green knowledge, which could benefit both the business and the environment. Based on previous research showing that GEO has a positive and significant effect on SPE, the following hypothesis can be proposed:

H_3: Green entrepreneurial orientation has a positive effect on sustainability performance.

2.6. Conceptual Framework

The conceptual framework in this study illustrates the relationship between three independent variables, Innovation (INV), Dynamic Capabilities (DCS), and Green Entrepreneurial Orientation (GEO)—and one dependent variable, namely Sustainable Performance (SPE), as shown in Figure 1. This model is applied in the context of businesses aiming to enhance sustainability outcomes. The framework hypothesizes that each independent variable positively influences sustainable performance, as represented by hypotheses H_1, H_2, and H_3 respectively.

3. RESEARCH METHODOLOGY

This paper collected data using a quantitative approach with primary data. The survey was distributed via Google Forms to targeted individuals who own or work at MSMEs located in the Jakarta and Tangerang areas. Several approaches were used to reach potential respondents, such as directly visiting MSMEs, reaching out to MSME communities, and utilizing various social media platforms such as Telegram and Instagram to engage with potential respondents. A convenience sampling method was employed in this study to simplify the data collection process. The convenience sampling involved several considerations, including the type of MSMEs, business scale, regional distribution, and the organization role of the respondents. The respondents consisted of owners, directors, managers, and supervisors of SMEs spread across the districts. Moreover, the classification of MSMEs is determined according to revenue of each business scale, as regulated by Government Regulation Number 7 of 2021 regarding the Ease, Protection, and Empowerment of Cooperatives and Micro, Small, and Medium Enterprises (The Government of Indonesia, 2021). Based on this approach, the samples were gathered from the eight regions in Jakarta and Tangerang, including Central Jakarta, North Jakarta, West Jakarta, South Jakarta, and East Jakarta, while the Tangerang region includes Tangerang City, South Tangerang City, and Tangerang Regency. The data is only collected once over some period; a cross-sectional temporal horizon is utilized.

Based on the number of samples using Levy and Lemeshow (2015) minimum of 96 respondents, the researcher distributed an estimated 300-400 questionnaires. However, respondents were reduced from the sample because several respondents did not meet the criteria. Thus, the final number of respondents collected was 162. After completing the data collection, data analysis was conducted using multiple regression analysis, which was obtained using statistical tools such as SmartPLS (Partial Least Square) and SPSS. The study applied SmartPLS to assess validity and reliability via structural equation modeling, and SPSS to perform

descriptive statistics. This study examines sustainable performance (SPE) as the dependent variable, with innovation (INV), dynamic capabilities (DCS), and green entrepreneurial orientation (GEO) as the independent variables. The research instrument was a questionnaire with closed statements; for each statement, the answers were arranged on a 6-point Likert scale – 6 points ranging from 1 strongly disagree – to 6 strongly agree (Chyung et al., 2017). The indicators are adopted from SPE measurements from Zhang et al. (2024) consisting of three dimensions—Environmental Performance, Economic Performance, and Social Performance with a total of twelve indicators. Furthermore, there are also seven INV items adopted from Antara et al. (2024); eight DCS items from Eikelenboom and de Jong (2019); and twelve GEO items from Zhang et al. (2024).

Prior to finalizing the questionnaire, comprehensive discussions were held with a sustainability expert and 15 MSME representatives across different sectors and managerial levels. These discussions aimed to review and adapt the indicators to better fit the local context and the specific characteristics of Indonesian MSMEs. As a result, several key modifications were made. For example, a general statement item in Sustainability Performance like "overall financial performance is good" was revised to "operational efficiency has improved," which is easier for respondents to assess. Several other adjustments were also made to reflect appropriate time frames and to ensure that the questions were easily understood. The methods of translation and back-translation were used to ensure the language equivalence of the scales. After many discussions and feedback, several unclear and ambiguous questions were revised, and the questionnaire was finally completed.

4. RESULT AND DISCUSSION

4.1. Respondent Characteristics

Table 1 presents the distribution of the research sample. The sample consists of 60 male respondents (37%) and 102 female respondents (63%). The majority are aged between 18 and 25 years (55%), with most identifying as business owners (73%). Most respondents' annual revenue was concentrated in the lowest income bracket (≤IDR2,000,000,000) at 48% of total respondent. In contrast, only 16% earned more than IDR15,000,000,000 per year, which means that the majority of MSMEs are still small in scale. In total, there are 162 MSMEs from Jakarta and Tangerang regions participated in this survey.

4.2. Descriptive Statistical Analysis

Table 2 shows the results of the descriptive statistical test. Based on the data analysis in Table 2, the variable INV scales from a minimum value of 2.71, indicating slightly disagree, to a maximum value of 6.00, indicating strongly agree. The mean score of INV is 4.92, equivalent to 5 on the Likert scale, or indicating agree. This result means that MSMEs tend to agree that innovation is an important factor for business competitiveness, as the majority indicated that consumers choose their products due to the advantages offered in terms of quality, innovation, and added value. The standard deviation of 0.69, which is below 1, indicates that respondents' perceptions of INV are relatively consistent. In addition, the variable DCS has a minimum value of 2.75 and a
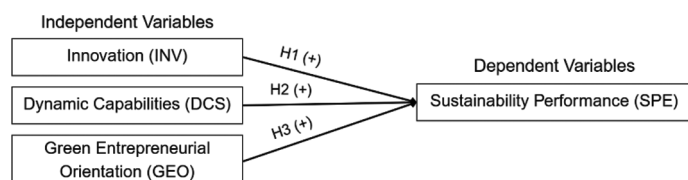
Figure 1: Research model

Independent Variables

- Innovation (INV)
- Dynamic Capabilities (DCS)
- Green Entrepreneurial Orientation (GEO)

H1 (+)
H2 (+)
H3 (+)

Dependent Variables

- Sustainability Performance (SPE)

Table 1. Respondent characteristics result

Characteristics	Frequency (n)	Percentage
Total respondent	162	100
Gender		
Male	60	37
Female	102	63
Age		
18-25 years	89	55
26-30 years	27	17
31-45 years	12	7
>45 years	34	21
Job Position		
Owner	119	73
Supervisor	11	7
Manager	14	9
Staff	18	11
Business Area		
Central Jakarta	24	15
North Jakarta	7	4
South Jakarta	17	10
East Jakarta	12	7
West Jakarta	26	16
Tangerang City	33	20
South Tangerang City	39	24
Tangerang Regency	4	2
Industry		
FnB	77	48
Fashion	36	22
Automotive	7	4
Beauty and Personal Care	20	12
Handicrafts	15	9
Agriculture and Fisheries	7	4
Annual Revenue		
≤IDR 2,000,000,000	78	48
>IDR 2,000,000,000-≤15,000,000,000	58	36
>IDR15,000,000,000-≤50,000,000,000	26	16

Source: Authors' own construct

Table 2: Statistic descriptive result

Variable	N	Min	Max	Mean	STDV
INV	162	2.71	6.00	4.92	0.69
DCS	162	2.75	6.00	5.06	0.69
GEO	162	1.33	6.00	4.69	0.90
SPE	162	2.00	6.00	4.88	0.73

Source: Data processed using SPSS Software. Dependent Variable: Sustainability Performance (SPE), Independent Variables: Innovation (INV), Dynamic Capabilities (DCS), Green Entrepreneurial Orientation (GEO)

maximum value of DCS is 6.00. The mean score of DCS is 5.06, the highest among the measured variables, equivalent to 5 on the Likert scale, or indicating agree. This result indicates that the MSMEs agree to have dynamic capabilities in terms of internal capability such as mentoring, communication, and team support, as well as external capability like collaboration with consumers and other organizations. This is further supported by the low standard deviation of 0.69, which is below 1, suggesting that respondents' perceptions of DCS are relatively consistent.

Based on the data in Table 2, the variable GEO has a minimum value of 1.33 and the maximum value is 6.00. The mean score of GEO is 4.69, equivalent to 5 on the Likert scale, or indicating agree. This result indicating that MSMEs agree to perceive green

entrepreneurial orientation as being more dominant in proactive efforts to maximize opportunities and mitigate environmental risks. The standard deviation of 0.90, which is still below 1, suggests that respondents' perceptions of GEO are consistent, although slightly more varied compared to other variables. For the variable SPE, the minimum value is 2.00, indicating disagree, while the maximum is 6.00. The mean score of SPE is 4.88, equivalent to 5 on the Likert scale or agree, showing that many MSMEs agree they have considered the well-being of all stakeholders, ensured transparency, and made efforts to reduce environmental pollution, which has also led to improved overall performance. The standard deviation of 0.73, which is below 1, indicates that respondents' perceptions of SPE are relatively consistent. 4.3 Reliability and validity testing.

4.3. Reliability and Validity Testing
The validity test used the outer model and AVE, while the reliability test used Cronbach's Alpha and composite reliability. Results from our analysis using SmartPLS 4 show that all four indicators have outer loading values above 0.60, ranging from 0.658 to 0.838, confirming their validity in measuring the constructs. Similarly, the AVE values show that all variables have met the valid criteria, where all AVE values are > 0.5 (Hair et al., 2021). Furthermore, the reliability tests confirmed that all items are reliable, as both Cronbach's Alpha and composite reliability values have the lowest values was 0.858 for the INV indicator, while the highest was 0.956 for the GEO variable, both above the commonly accepted minimum of 0.70. In conclusion, all data met the required reliability and validity criteria, enabling further testing evaluating the accuracy of the research model.

4.4. Hypothesis Testing Result and Discussion
Based on the data in Table 3, the adjusted R-square was found to be 0.679. This implies that 67.9% of the variance in the dependent variable can be explained by the independent variables included in the model, while the remaining 32.1% is influenced by other factors not captured in this study. The hypothesis testing was conducted with a t-statistic threshold of 1.96 at a 5% significance level (Hair et al., 2021), indicating that relationships are statistically significant when the p-value is below 0.05. The results show that innovation (INV) is positively influencing sustainability performance ($\beta = 0.166$, t = 2.020, P = 0.043). Therefore, since the path coefficient is positive, the t-statistic exceeds 1.96, and the p-value is below 0.05, H1 is accepted. According to the data analysis results in Table 3, the results indicate that INV has a significant direct impact on SPE of MSMEs. This finding indicates that MSMEs that implement innovative practices tend to strengthen both business competitiveness and resilience. Such innovative practices include developing products with superior functionality and integrating the latest technologies into business operations. Thus, when these innovations enhance business competitiveness, they also contribute to improved sustainability performance. In this context, MSMEs have already applied the concept of RBV theory in their business, where they should have innovation as an internal resource and competitive advantage that allows them not only to survive economically but also to have the resources to invest in more environmentally and socially responsible decision. This result aligns with previous research from Wang et al. (2025), which

Table 3: Hypothesis test result

Variable	Prediction signed	Path coefficient	T Statistics	P Values	Result
INV → SPE	+	0.166	2.020	0.043***	Accepted
DCS → SPE	+	0.550	7.177	0.000***	Accepted
GEO → SPE	+	0.192	2.468	0.014***	Accepted
n				162	
Adjusted r-square				0.679	

Source: Data processed with SmartPLS 4. ***P<0.05; Dependent Variable: Sustainability Performance (SPE), Independent Variables: Innovation (INV), Dynamic Capabilities (DCS), Green Entrepreneurial Orientation (GEO)

stated that if MSMEs have implemented innovative initiatives, then the results can significantly enhances sustainability performance because MSMEs can maximize resource efficiency, minimize waste, and explore new market opportunities. Moreover, Tamayo-Orbegozo et al. (2017) highlight that innovation is a key driver for achieving sustainability performance by not only focusing on green initiatives but also improving MSMEs competitive advantage in dynamic markets. This finding answer an important research gap by positioning innovation as an independent variable rather than only a mediating one, especially in the context of MSMEs, could help them improve their sustainability performance in economic, social, and environmental.

In addition, DCS has positive influence on sustainability performance (SPE), with a positive path coefficient of 0.550, a t-statistic of 7.177, and a p-value of 0.000. Since the path coefficient is positive, the t-statistic exceeds, 1.96 and the p-value is below 0.05, H_2 is accepted. According to the data analysis results in Table 3, the results indicate that DCS has a significant direct impact on SPE of MSMEs. Based on our findings, dynamic capabilities play an important role in improving sustainability performance, as many MSMEs strengthen their internal systems to help teams adapt more quickly to business challenges. Supportive teamwork and the collection of customer feedback demonstrate sensing capabilities, enabling MSMEs to better understand both market needs and environmental concerns. At the same time, many MSMEs are working with environmentally responsible suppliers and collaborating with external partners, which reflects their seizing and reconfiguring capabilities. These practices allow them to strengthen their initiatives that support sustainability performance. In line with RBV theory, dynamic capabilities can be seen as valuable internal resources that provide MSMEs with a source of competitive advantage to achieve long-term sustainability performance. This result aligns with prior studies from Asumah et al. (2024), which confirm that dynamic capabilities positively contribute to sustainability performance, as they enable MSMEs to adapt quickly, respond effectively to industry trends, and minimizing input costs to produce outputs at the same level. In addition, this finding also supported by the study conducted by Mousavi et al. (2018) that has discussed dynamic capabilities positively affect sustainability performance because MSMEs are able to build resilience, manage environmental uncertainty, and create strategies that support long-term sustainability performance growth. This study explain the view that dynamic capabilities are an essential role of sustainability performance in MSMEs, but their impact depends on how effectively MSMEs manage these capabilities into concrete sustainability practices.

Lastly, GEO also shows a positive and significant effect on sustainability performance (β = 0.192, t = 2.468, P = 0.014). Thus, since the path coefficient is positive, the t-statistic exceeds 1.96, and the p-value is below 0.05, H3 is accepted. Based on our findings, MSMEs that adopt a green entrepreneurial orientation tend to innovate by producing environmentally friendly products or services, reducing the use of raw materials, and utilizing technology in the development of sustainable products. In addition, MSMEs with a strong entrepreneurial orientation are more likely to maximize market opportunities faster than competitors and taking risks through strategic collaborations. Thus, this GEO practices act as valuable internal resources and sources of competitive advantage for MSMEs, in line with the RBV theory, which support them to achieve long-term sustainability performance. Previous research indicates that organizations with a strong environmental orientation can better implement green innovations, reducing ecological footprints and leading to competitive advantages (Makhloufi et al., 2022). Similarly, Antara et al. (2024) also found that adopting a GEO mindset impact MSMEs to prevent environmental pollution and achieve long-term sustainability performance growth. Overall, the results of this study shows that GEO is an essential part of sustainability performance in MSMEs. By implementing a green entrepreneurial mindset, MSMEs can maintain competitiveness and achieve environmental, economic, and social performance.

5. CONCLUSION

Research on sustainability has grown rapidly among professionals, policymakers, and academics. However, there are still gaps in understanding how organizations, especially MSMEs, can remain competitive while maintaining their sustainability performance. To address these gaps, this study has examined how innovation, dynamic capabilities, and green entrepreneurial orientation can influence the sustainability performance of Indonesian MSMEs, particularly in the Jakarta and Tangerang areas, to achieve long-term success. Based on our findings, the results indicate that innovation, dynamic capabilities, and green entrepreneurial orientation, have a significant effect on sustainability performance. This study emphasizes that MSMEs should prioritize the development of dynamic capabilities to strengthen organizational resilience, enabling them to adapt effectively to changing environmental conditions. At the same time, enhancing the uniqueness and innovation of business models is essential for building a sustainable competitive advantage. Furthermore, greater investment in green entrepreneurial orientation is recommended, as integrating environmental responsibility into business strategies can reduce ecological risks and enhance MSMEs' sustainability

performance which directly contribute to the realization of the United Nations Sustainable Development Goals, particularly SDG 8: Decent Work and Economic Growth. By focusing on sustainability and productivity, MSMEs play a key role in reducing income disparities, expanding job creation, and supporting overall national economic growth.

This study provides practical implication that are beneficial to MSMEs. First, in terms of innovation, MSMEs must continue to integrate innovation and green entrepreneurial orientation into their business strategies. This can be done through initiatives such as continuously innovating product or service design in terms of functionality, quality, and features that are superior to competitors, while also considering environmentally friendly aspects. In addition, MSMEs can adopt green technological practices and foster eco-friendly collaborations, which not only help reduce costs but also enhance competitiveness. Furthermore, in terms of dynamic capabilities, MSMEs are encouraged to provide employee training to strengthen adaptability within teams and organizational culture, as well as to actively gather stakeholder feedback. These efforts enable a deeper understanding of customer needs and contribute to sustaining long-term business growth.

Second, the government and policymakers also may support MSMEs in building capabilities and encouraging green oriented entrepreneurship by investing in training programs for MSMEs to increase their sustainability knowledge and strengthen their adaptive managerial skills. By providing a supportive ecosystem, governments can help MSMEs improve their sustainability outcomes and competitive business models. Other than that, the government may also implement incentives programs to encourage companies to adopt green entrepreneurial orientation. For example, offering tax incentives, low-interest loans, and financial subsidies, especially for MSMEs that implement sustainable practices. Third, the findings of this study can be implemented as a valuable reference for financial institutions and investors in assessing the financing feasibility of MSMEs. Investors should consider innovation, dynamic capabilities, and green entrepreneurial orientation as essential criteria when making decision, as these factors help mitigate environmental and operational risks while making sure long-term resilience. Lastly, this study also provides significant insights for academia by encouraging the expansion of theoretical frameworks that explore how these three factors interact to enhance sustainability outcomes, particularly within the MSME context.

5.1. Limitations and Future Research

This study had several limitations highlighting potential areas for future research. First, the composition of the respondent sample restricts the generalizability of the findings. The lowest represented sectors were automotive and agriculture, comprising only 4% of the sample, and respondents from the Tangerang Regency constituted just 2% of the total. Consequently, the results may not fully represent the broader context of Indonesian MSMEs across different industries and geographical locations. Second, the reliance on self-reported data introduces the possibility of social desirability bias. The researchers had no control over the personal motivation of respondents, who may have been influenced

by a desire to present a positive impression of the sustainability practices rather than reflecting actual conditions. Third, many respondents within the researchers' reach demonstrated limited knowledge about the importance of sustainability and the purpose of the research, resulting in some refusals to participate in this research.

To address these limitations, future research should consider using more diverse data collection methods by expanding the sample to include MSMEs from various sectors and regions would enhance the generalizability of the findings. Future research should also implement targeted strategies to improve engagement and response rates among these harder-to-reach segments. Second, the issue of participation refusal from less-informed MSMEs highlights a risk of non-response bias, where the sample may over-represent MSMEs already engaged with sustainability. Future research could do such as in-depth interviews or direct observations, in order to obtain more objective and valid insights. Questionnaire design could also be improved by ensuring neutrality in item phrasing and by explicitly including statements about confidentiality at the beginning. Therefore, it can encourage respondents to provide more honest and accurate answers. Last, researchers could also provide preliminary workshops, briefings, or educational materials to raise awareness about sustainability and the study's relevance, thus could improve respondent engagement and willingness to participate.

6. ACKNOWLEDGMENT

7. AUTHORS' CONTRIBUTIONS

Monica Angeline: Methodology, Software, Formal Analysis, Resources, Data Curation, Writing Original Draft, Visualization, Project Administration. Tommy Andrian: Conceptualization, Methodology, Validation, Formal Analysis, Resources, Writing Original Draft, Writing Review and Editing, Visualization, Supervision, Project Administration

8. DATA AVAILABILITY

Data supporting this study are openly available from Mendeley Data (doi: 10.17632/fyb3rgczp8.2)

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