

## MSMES' SUSTAINABLE PERFORMANCE IN LAGOS STATE, NIGERIA: THE ROLE OF GREEN ENTREPRENEURSHIP PRACTICES

<sup>1</sup>John Oluwasayo AJANI; <sup>2</sup>Joseph Olusegun DAVID; <sup>3</sup>Opeyemi Oluseun OYELUDE; <sup>4</sup>Adijat Mojisola MUTAIRU; <sup>5</sup>Julianah Funmilayo AKINTUNDE-ADEYI & <sup>6</sup>Oluwaseun O. OLUWASANMI

<sup>1,3,4,5</sup>Business Administration, Bowen University, Iwo

<sup>1</sup>[john.ajani@bowen.edu.ng](mailto:john.ajani@bowen.edu.ng)

<sup>3</sup>[opeyemi.oyelude@bowen.edu.ng](mailto:opeyemi.oyelude@bowen.edu.ng)

<sup>4</sup>[Mutairumojisola2012@gmail.com](mailto:Mutairumojisola2012@gmail.com)

<sup>5</sup>[julianah.akintunde-adeyi@bowen.edu.ng](mailto:julianah.akintunde-adeyi@bowen.edu.ng)

<sup>2</sup>Business Administration, Babcock University, Ilishan-Remo

[jo.david@babcock.edu.ng](mailto:jo.david@babcock.edu.ng)

<sup>6</sup>Business Administration, MIVA Open University, Abuja

[oluwaseun@miva.university](mailto:oluwaseun@miva.university)

### ABSTRACT

*Growing environmental concerns have intensified interest in adopting green entrepreneurship practices to enhance the sustainable performance of MSMEs. This development underscores the need for the present study to examine the role of green entrepreneurship practices in promoting the sustainable performance of MSMEs in Lagos State, Nigeria. The study specifically determined the extent to which four green entrepreneurship practices impact the sustainable performance of MSMEs.*

*The study adopted a cross-sectional survey design involving 108 respondents from a sample of 120 MSMEs in Lagos State, Nigeria, within a population of over 3.2 million microenterprises. Respondents were selected using a simple random sampling technique based on the lottery method. Primary data were collected through a structured questionnaire administered to MSME owners via Google Forms. Structural equation modelling (SEM) was employed for data analysis.*

*The findings reveal that process innovation ( $\beta = 0.138, p < 0.05$ ), managerial innovation ( $\beta = 0.222, p < 0.05$ ), and green business opportunities ( $\beta = 0.317, p < 0.05$ ) have significant positive relationships with the sustainable performance of MSMEs. Conversely, product innovation ( $\beta = 0.013, p > 0.05$ ) was found to have no significant relationship with the sustainable performance of these enterprises.*

*The study concludes that green entrepreneurship practices are critical to the attainment of sustainable performance among MSMEs, and it provides valuable insights for MSME operators and other relevant stakeholders in Lagos State and across Nigeria.*

### INTRODUCTION

In a time marked by heightened global consciousness about social and environmental issues, the convergence of entrepreneurial activities with an emphasis on beneficial societal and ecological effects has garnered considerable attention (Baber et al., 2026). To encourage sustainable development, sustainable practices such as recycling, efficient waste management, renewable energy, and eco-friendly products are necessary (Ansari, 2025). Consequently, increased environmental awareness has heightened demand for green entrepreneurs in society. Green entrepreneurship (GE) represents a distinct form of entrepreneurial activity focused on creating and implementing innovative solutions to environmental challenges, while also promoting societal transformation aimed at minimising environmental degradation (Appiah et al., 2023).

Green entrepreneurship is an environmentally conscious form of business activity that gives adequate consideration to the preservation of environmental resources while supporting local communities and promoting economic development. It is often classified as a type of social entrepreneurship because it represents an innovative, social value, creating an endeavour that may pursue non-profit, commercial, or governmental objectives (Ghodbane & Alwehabe, 2023). Beyond its environmental focus, green entrepreneurship also addresses unemployment challenges by providing opportunities for innovation, technological adaptation, and job creation (Loffi et al., 2018). GE is gaining increasing prominence as it is driven by the growing demand for sustainable development, which is why it is often regarded as synonymous with sustainable entrepreneurship. For businesses, particularly micro, small and medium-sized enterprises (MSMEs), green entrepreneurship provides long-term stability and a source of competitive advantage.

In fact, GE has been developed as a catalyst for social economy outlook shaping, cultural transformation, institutional advancements related to environmental modernisation, and quality improvements in organisational practices, strategies, and structures (Karimi & Nabavi Chashmi, 2019). Additionally, by developing innovative, eco-friendly goods and encouraging a global change in corporate strategy towards more sustainable products and processes, green entrepreneurs have a tremendous potential to assist in controlling the present environmental crises towards sustainable performance among MSMEs.

Sustainable performance in MSMEs has been a major focus, reflecting the increased expectation that MSMEs contribute to social and environmental goals in addition to economic ones. Fundamentally, sustainable performance is the capacity of a business to provide long-term value by balancing social, environmental, and economic results as opposed to concentrating just on immediate financial gain (Mohd Saman et al., 2025). Since the idea of sustainable development has gained widespread acceptance, businesses' capacity for innovation is no longer limited to financial gains (Wang & Zhang, 2025). It must concurrently advance in the social, economic, and environmental spheres. Sustainable performance in MSMEs entails recognising the interdependence of social factors, economic performance, and environmental protection, as well as the need to consider all three pillars of sustainability—economic, social, and environmental—and finding a balance between them while preserving long-term viability and stability in each (Zaman et al., 2025). This multifaceted viewpoint is consistent with more general frameworks for sustainability that highlight triple-bottom-line effects. In the context of MSMEs, sustainable performance will require the inclusion of green entrepreneurship practices such as process innovation, product innovation, managerial innovation and green business opportunities to achieve sustainability in terms of resource efficiency, waste management, and cost efficiency (Utami et al., 2024).

MSMEs are an integral part of the African economy by engaging in diverse business activities and providing employment opportunities for the vast population on the continent. In Nigeria, MSMEs take an overwhelming share of productive activities, representing 89.9% of enterprises and contributing 46.32% to the country's GDP (Pwc, 2024). In addition, MSMEs account for approximately 87.9% of job creation, thereby playing a critical role in addressing persistent unemployment challenges within the country and across the continent more broadly (SMEDAN, 2021). This broad reach demonstrates the sector's vital role in wealth generation, grassroots entrepreneurship, and economic diversification beyond oil.

Despite these levels of performance, MSMEs in developing countries face a number of obstacles that limit their sustainability. They are vulnerable to several challenges in the face of

increasing economic and competitive pressures worldwide, especially in emerging nations. As a result, MSMEs make up at least 70% of businesses that are unsustainable and usually do not last more than five years (Ismail, 2022). Sharp structural issues are also indicated by recent trends: between 2023 and 2024, almost 30% of Nigeria's 24 million registered MSMEs closed due to growing expenses, foreign exchange volatility, and macroeconomic instability (Salau, 2025).

MSMEs frequently struggle to achieve sustainable performance that strikes a balance between economic viability, social equality, and environmental stewardship despite playing a crucial role in the economy. MSMEs are faced with problems associated with high market instability, technological limitations, interest rates, collateral restrictions, and a lack of financial inclusion, hindering their economic performance (Pwc, 2024). Performance and expansion are further hampered by inadequate infrastructure, particularly unstable electricity, and complicated regulatory frameworks.

Moreover, social dimensions such as decent working conditions and community engagement are often unevenly addressed, and in highly competitive markets, employees' well-being is frequently compromised in the quest for survival (Mishra & Kiran, 2026). Environmental performance presents an even greater challenge for MSMEs, as they commonly operate with inefficient resource utilisation, generate substantial waste, and possess limited capacity to adopt green practices, all of which intensify sustainability concerns (Oduro, 2024). At the core of these issues lies a fundamental tension between short-term financial survival and broader sustainability goals: conventional profit-oriented business models tend to overlook social and environmental considerations, thereby constraining the achievement of genuine sustainable performance.

Nevertheless, MSMEs can leverage the use of green entrepreneurship practices to develop innovative products and processes that reduce their impact on the environment while creating new markets, boosting their competitive edge, and adapting to changing customer demands for sustainability (Mukti Diapopin et al., 2025). Therefore, the core challenge lies in the inability of MSMEs, under prevailing business paradigms, to simultaneously achieve economic, social, and environmental performance. Green entrepreneurship offers a viable pathway to address this gap by reorienting business objectives toward growth that is sustainable, inclusive, and environmentally responsible. Therefore, this study seeks to examine the role of green entrepreneurship practices in promoting the sustainable performance of MSMEs in Lagos State, Nigeria. The study will specifically determine the extent to which four green entrepreneurship practices (process innovation, product innovation, managerial innovation and green business opportunities) impact the sustainable performance of MSMEs in Lagos State.

## **LITERATURE**

### **Green Entrepreneurship**

Green entrepreneurship involves the development of innovative products and solutions aimed at addressing environmental challenges, and the term itself originates from the integration of concepts related to environmental sustainability and entrepreneurship (Lotfi et al., 2018). It blends a strong sense of business with an awareness of sustainability and other environmental movement tenets, such as the need to identify and specify environmental compatibility under all conditions.

Green entrepreneurship comprises the use of product innovation, process innovation, managerial innovation and green business opportunities (Vasilescu et al., 2023). Product innovation includes changes made to enhance product design, quality, and safety, as well as

lessening the environmental effect of the product's whole life cycle, such as lowering production toxins, using energy efficiently, and using biodegradable packaging (Rodrigues & Franco, 2023). Process innovation is the process of increasing manufacturing processes' efficiency to lessen their negative effects on the environment (Luo et al., 2023). This includes employing renewable energy sources to minimise waste, material and energy usage.

Managerial innovation involves the adoption of novel management practices, processes, and frameworks distinct from technical or product innovations and is increasingly recognised as a key driver of MSME performance and competitiveness (Gashema & Gao, 2018). Studies indicate that by transforming organisational culture, enhancing cross-functional coordination, and adapting leadership styles, managerial innovation enhances SMEs' flexibility in dynamic market environments (Asghar et al., 2023). Owing to constrained internal resources and reliance on standardised knowledge, MSMEs face particular challenges in advancing process, product and managerial innovations. To overcome these limitations, they must engage in collaboration with external partners and competitors, access diverse sources of expertise, and adopt open innovation strategies to leverage shared information and resources (Polas et al., 2022).

The entrepreneurial process begins with recognising and exploiting opportunities (Bygrave & Hofer, 1992). Opportunity recognition involves identifying viable ideas, while opportunity exploitation focuses on innovation-driven activities such as mobilising resources, developing innovations, and introducing them to the market (Chen & Liu, 2020). Together, these processes form the core behavioural foundations of entrepreneurship. To achieve their environmental objectives, entrepreneurs may leverage cooperative networks to identify green business opportunities, support resource acquisition, and enhance sustainable performance.

Green entrepreneurship can serve as a crucial avenue for MSMEs to attain economic, social, and environmental performance. By creating innovative, eco-friendly products and driving organisational shifts toward sustainable processes, green entrepreneurs hold significant potential to address current environmental challenges and promote long-term sustainability.

### **Sustainable Performance**

In recent years, sustainable performance has emerged as a strategic priority for businesses, driven by the global sustainability agenda and the collective commitment of member nations to achieve the 17 Sustainable Development Goals (SDGs). Sustainable performance reflects an organisation's ability to achieve its strategic objectives and enhance shareholder value while simultaneously fulfilling its long-term social, environmental, and economic responsibilities (Al-Abadi & Abu Rumman, 2023). Sustainable performance is achieved when organisations balance economic, social, and environmental dimensions in their operations and decision-making (Sapta et al., 2021). Accordingly, MSMEs are not exempt from these expectations and are required to pursue economic and financial objectives while simultaneously delivering social value and protecting the natural environment. Moreover, sustainable performance requires MSMEs to meet present needs without compromising the ability of future generations to meet their own requirements.

The environmental dimension of sustainability emphasises the protection of ecosystems and natural resources, as well as the reduction of the environmental impacts of human activities through effective pollution control, waste minimisation, and the use of renewable resources (Bengana et al., 2026; Ginting, 2020). Accordingly, MSMEs are expected to mitigate the adverse environmental effects of their operations by utilising natural resources responsibly,

adopting renewable energy sources, conserving biodiversity, and promoting recycling practices. The economic dimension of sustainability focuses on the efficient use of resources and on investment in technologies and processes that support economic growth (Jeronen, 2023). This requires MSMEs to engage in sustainable economic practices that maximise well-being for both present and future generations while ensuring equitable and efficient resource allocation. The social dimension of sustainability emphasises social equity and well-being through improved living and working conditions, equality, and community engagement (Baum, 2021). By promoting stakeholder accountability, transparency, and employee well-being, organisations can enhance productivity, customer satisfaction, and retention, thereby strengthening competitiveness and supporting long-term economic performance (Bengana et al., 2026). In the end, MSMEs must operate economically while contributing to the triple bottom line of environmental stewardship and social responsibility.

In conclusion, MSMEs looking for long-term competitiveness and resilience now consider sustainable performance to be a crucial strategic need. According to the literature, MSME sustainability includes social responsibility and environmental stewardship in addition to short-term financial results, which is consistent with the triple bottom line viewpoint. Stakeholder trust, operational effectiveness, and adaptability in changing markets are all improved by the successful incorporation of sustainable practices. However, MSMEs frequently encounter limitations due to a lack of institutional support, resources, and capacities, which affect sustainable outcomes. Strengthening MSMEs' sustainable performance and guaranteeing their contribution to inclusive and sustainable economic growth requires addressing these issues via innovation, supporting policy frameworks, and capability development. This underscores the importance of embedding green entrepreneurship practices within MSMEs' core business functions as a strategic pathway to enhancing sustainable performance.

### **Theoretical Framework**

This study is grounded in the Triple Bottom Line and Circular Economy theories, which provide a theoretical foundation for understanding sustainable performance and green entrepreneurship.

#### **Triple Bottom Line (TBL) Theory**

The Triple Bottom Line (TBL) is a widely adopted theoretical framework for integrating sustainability principles into firms' operational and strategic activities. This theory, pioneered by Elkington (1998) provides a framework that stresses the interdependence and integration of three pillars of sustainability: economic, social, and environmental. Firms must perform well in all three aspects of the triple bottom line, with a clear focus on social, environmental, and economic concerns, to be deemed sustainable (Senyo & Osabutey, 2023). In response to the growing demand for sustainable development, organisational competitive practices have expanded beyond traditional economic considerations to incorporate social and environmental sustainability dimensions (Qi & Yang, 2023).

The TBL paradigm has gained popularity in the context of MSMEs because, despite their considerable contributions to local economies and employment, these businesses confront particular sustainability issues, such as resource limitations, waste management, finance and a lack of regulatory assistance. Integrating TBL principles can close gaps between environmental practices, social involvement, and economic resilience (Matthews et al., 2019). Therefore, firms are expected to incorporate these three pillars in their quest for sustainable performance. They must seek economic sustainability by increasing their profit, sales, shareholders' value and cash flow (AL-Dosari et al., 2023). Consequently, MSMEs are required to seek an increase

in their profit and sales to achieve economic sustainability. The social sustainability considers the promotion of humans by improving their well-being, including both employees and the community, through social responsibility activities, ethical labour practices, and community participation (Bai et al., 2020). The environmental sustainability element in the framework also considers the community and specifies that firms must engage in activities that reduce their ecological footprint through energy and waste reduction (Laosirihongthong et al., 2020).

To minimise potential trade-offs and conflicts, the TBL framework emphasises the need for an integrated and evolving relationship among the three dimensions for sustainable performance among MSMEs. Achieving sustainable performance requires MSMEs to consider economic, social, and environmental factors simultaneously. These enterprises are encouraged through the TBL framework to adopt practices that contribute positively to all three areas specified (Aransyah et al., 2025). Such practices could include green entrepreneurship, which may be vital in guiding MSME owners' strategic decisions towards sustainable performance.

### **Circular Economy (CE) Theory**

The CE concept was first introduced by Pearce and Turner in 1989 (Meshram, 2024). The theory has arisen as a significant theoretical framework for redefining contemporary production and consumption models, contesting the conventional “take-make-use-dispose” linear approach by promoting resource efficiency, waste reduction, and regenerative systems that close material loops through methods such as reuse, recycling, and remanufacturing (Teixeira, 2025). CE theory asserts that economic activity and environmental stewardship may coexist by designing business models that preserve natural capital, decouple growth from resource depletion, and incorporate closed-loop supply chains across sectors (Badjeena et al., 2024). The circular economy initially comprised the 3R principles, which are reduce, reuse and recycle (Kirchherr et al., 2017) and have often been expanded to include recovery and repair among other principles aimed to decrease waste and optimise resource reutilization.

The circular economy offers significant social and environmental benefits, and green entrepreneurship constitutes a critical concept in facilitating an economy's transition toward a circular economy. Innovative business models can help bridge existing gaps by creating critical linkages within supply and value chains while simultaneously generating new business opportunities with social value (Badjeena et al., 2024). In this context, green entrepreneurship plays a pivotal role in advancing the circular economy by enabling the development and diffusion of such models. Mondal et al. (2023) emphasise the critical role of green entrepreneurs in promoting resource efficiency and waste reduction within the economy. They conceptualise green entrepreneurship as a pathway to achieving environmental sustainability, a core principle of the circular economy. Through the adoption of innovative business models and practices, green entrepreneurs can contribute to reducing environmental pollution and conserving natural resources. The transition to a circular economy has the potential to address climate change, reduce waste, mitigate business risks, enhance profitability, and improve quality of life (Meshram, 2024), with green entrepreneurs serving as key drivers of these principles. By adopting product, process, and managerial innovations, as well as pursuing green business opportunities, green entrepreneurs can make meaningful contributions to the advancement of the circular economy.

### **Empirical Review and Hypothesis Development**

#### **Green Entrepreneurship Practices and Sustainable Performance**

Yin et al. (2022) investigated the impact of green entrepreneurship on SME performance by gathering secondary data from listed firms on the SME board and GEM in China. The data was

analysed using inferential statistical techniques and discovered that whereas green invention innovation does not affect overall firm performance, green utility-model innovation has a beneficial impact on SMEs' firm performance. More intriguingly, the findings imply that older businesses gain more from the green utility-model and green invention innovation than do younger businesses.

Ansari (2025) examined how innovation and green entrepreneurship might support sustainability in the Sultanate of Oman. The study adopted a systematic literature review of publications related to the topic. The results indicate that green entrepreneurship and innovation are critical to achieving long-term sustainability objectives. By creating eco-friendly practices and looking into the potential for resilient communities, green entrepreneurship will guide management for protecting the environment and the planet.

Dewiyani et al. (2025) examined how eco-innovation and green entrepreneurial orientation affect sustainability practices, environmental awareness, and green business strategies among Indonesian engineering students. The study gathered data through a survey and analysed the data using structural equation modelling (SEM). The results showed that sustainability practices and environmental awareness are positively and significantly impacted by eco-innovation and green entrepreneurial attitude. Furthermore, the association between eco-innovation, green entrepreneurial attitude, and green business strategies is revealed to be mediated by environmental consciousness.

Karikari et al. (2025) examined the impact of green innovation practices and other variables on sustainable performance among Ghanaian SMEs. Primary data was gathered through a questionnaire, and the data was analysed using the PLS-SEM technique. The results showed that green innovation practices have the most impact on sustained performance. These results demonstrate that resource-constrained SMEs use green innovation techniques as a crucial transformation strategy to turn sustainability initiatives and digital investments into observable results.

AlQershhi et al. (2023) also examined the effect of green entrepreneurship on business sustainability in Malaysia. The study gathered primary data through a questionnaire and analysed the data using the PLS-SEM technique. The results revealed that green entrepreneurship significantly impacts business sustainability in the firms investigated. Vasilescu et al. (2023) examined the potential of green entrepreneurship and its motivators during a period of numerous difficulties, as green growth aims to balance sustainable development objectives with economic ones. The study sampled 7326 businesses from 36 European nations and employed a logistic regression model to determine what factors affect the choice to go green, taking into account supply and demand variables, resource efficiency strategies, and specific regulations. The study discovered that the country's degree of development, the company's age, its financial performance, and the incentive programs have a great deal of potential in encouraging eco-friendly business for green entrepreneurship.

Appiah et al. (2023) provided an integrated model that would improve the connection between green entrepreneurship orientation and sustainable business performance. Data from Green Entrepreneurs in Ghana's various industries were gathered using a structured questionnaire. The analyses were carried out with the SMART-PLS statistical package. The findings show that GEO influences firm performance and green innovation performance. Furthermore, the association between GEO and green innovation performance was considerably mitigated by green inventive capability.

Al-Abbadi & Abu Rumman (2023) examined how entrepreneurship, innovation and green HRM influence sustainable performance by sampling 350 employees and managers. The data gathered were analysed using the structural equation model. The findings revealed that entrepreneurship, innovation and green HRM have a significant positive influence on sustainable performance. Furthermore, Neumann (2022) adopted an empirical approach to examining the relationship between national shares of green entrepreneurial activity and sustainable development. The study gathered secondary data from 53 countries and analysed the data using inferential statistical techniques. The study found that higher green entrepreneurial activity shares are favourably correlated with social and economic growth but not with environmental development.

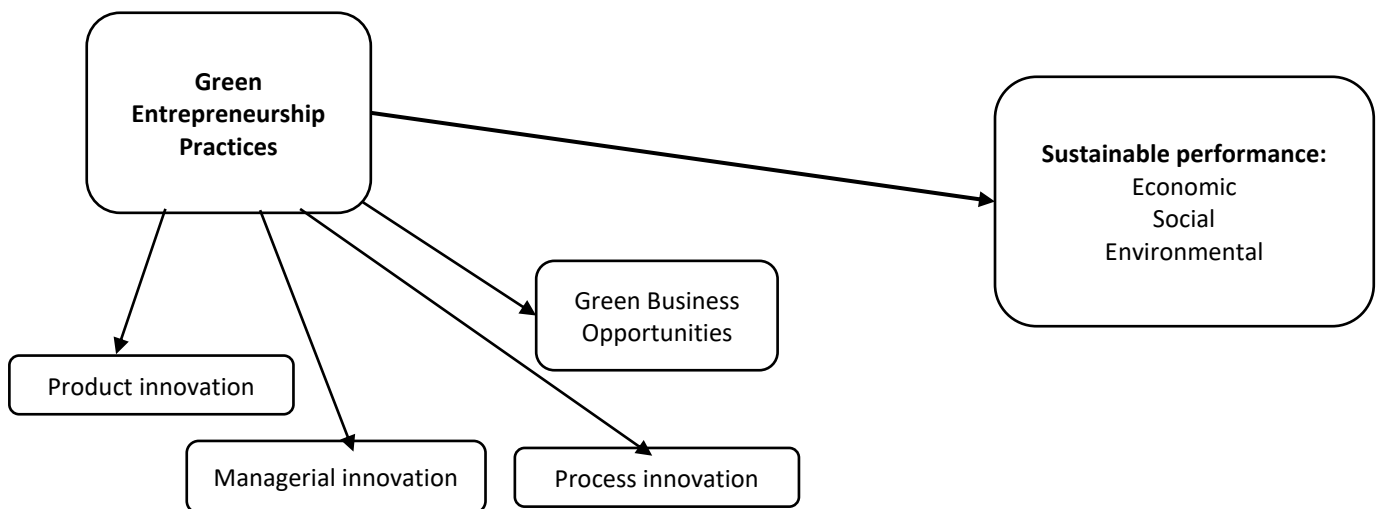
Öztürk et al. (2024) investigated the connection between sustainable firm performance and green entrepreneurial approach. Using a meta-analysis approach, the results revealed a favourable and very significant link between green entrepreneurial approach and sustainable firm performance. Furthermore, a strong and substantial correlation was discovered between the sub-dimensions of sustainable business performance, financial, environmental, social, sustainable, entrepreneurial, and green innovation performance, and green entrepreneurial orientation. Alwakid et al. (2021) used institutional economics as a theoretical framework to investigate how green entrepreneurial activity affects sustainable development. The study gathered secondary data from 13 Saudi Arabian cities, and the results demonstrate that, between 2012 and 2017, green entrepreneurship made a beneficial contribution to the economic, social, and environmental aspects of sustainable development.

Despite these insights, notable gaps remain. First, empirical evidence from sub-Saharan Africa is limited and uneven, with little context-specific research focusing on Nigeria and, more specifically, MSMEs in Lagos State. Second, few studies simultaneously examine green entrepreneurship and sustainable performance using the Triple Bottom Line framework within a single integrated model. Third, the role of local institutional, infrastructural, and resource constraints unique to Lagos-based MSMEs remains underexplored. Addressing these gaps will provide contextually grounded evidence on how green entrepreneurship can drive sustainable performance in Nigeria's most commercially active region.

Based on these, the following hypotheses were tested in the study:

- H<sub>0</sub>1- Process innovation does not have a significant impact on MSMEs sustainable performance.
- H<sub>0</sub>2- Product innovation does not have a significant impact on MSMEs sustainable performance.
- H<sub>0</sub>3- Managerial innovation does not have a significant impact on MSMEs sustainable performance.
- H<sub>0</sub>4- Green business opportunities do not have a significant impact on MSMEs sustainable performance.

Consequently, the conceptual model for the study is presented in Fig. 1.



**Figure 1: Conceptual Framework of the Nexus between Green Entrepreneurship Practices and Sustainable Performance**  
Source: Author’s Conceptualisation

## METHODOLOGY

The study adopted a cross-sectional survey design aimed at examining the role of green entrepreneurship practices in promoting the sustainable performance of MSMEs in Lagos State, Nigeria. The design was chosen to capture a snapshot of the current sustainable performance, innovation practices, and green business opportunities being adopted, without the need to monitor changes over time. The population of the study comprised over 3.2 million micro enterprises, where a sample of 120 MSME owners in Lagos state were purposively selected for the study. Out of 120 MSME owners invited, 108 responded, which represents 90%. Respondents were selected using a simple random sampling technique based on the lottery method. Primary data were collected through a structured online questionnaire administered to MSME owners using Google Forms. The instrument employed a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Green entrepreneurship served as the independent variable and was measured through product, process, and managerial innovations, as well as green business opportunities (Karimi & Nabavi Chashmi, 2019; Vasilescu et al., 2023).

Sustainable performance was the dependent variable, operationalised using the economic, social, and environmental dimensions of the Triple Bottom Line framework (Caiado et al., 2019; Elkington, 2013). Face and content validity of the instrument were assessed, alongside diagnostic tests including principal component analysis (PCA) and variance inflation factor (VIF). Reliability was evaluated using Cronbach’s alpha. Data analysis involved both descriptive and inferential techniques, with means and standard deviations used for descriptive analysis, while structural equation modelling (SEM) was employed to examine the influence of green entrepreneurial practices on MSMEs’ sustainable performance. Informed consent was obtained from the respondents before and throughout the data collection process. They were fully briefed on the study’s objectives and key details before data collection began. To ensure anonymity, the author refrained from recording personal information. Additionally, all data collected from the respondents were kept confidential.

### Analysis

The data was gathered through a survey of MSMEs in Lagos state, where a total of 108 responses were retrieved. The independent variable is green entrepreneurship, which includes: product innovation, process innovation, managerial innovation and green business opportunities. The dependent variable is sustainable performance. The study is guided by the model shown below:

$$sup = \beta_0 + \beta_1pdi + \beta_2prl + \beta_3mi + \beta_4gbo + \varepsilon$$

$\beta_0 = \text{intercept (constant)}$   
 $\beta_1, \beta_2, \beta_3, \beta_4 = \text{coefficient of the independent variable}$   
 $\varepsilon = \text{error term}$

*sup = sustainable performance*  
*pdi = product innovation*  
*prl = process innovation*  
*mi = managerial innovation*  
*gbo = green business opportunities*

### Pre-Estimation Tests

**Table 1: KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.844
Bartlett's Test of Sphericity	Approx. Chi-Square	1891.265
	Df	276
	Sig.	.000

#### Source: Author's Computation

The KMO test assesses the adequacy of your sample size for factor analysis by examining the partial correlations between the variables. The KMO value is **0.844**, which is considered **good**. Generally, values above 0.7 are considered acceptable for conducting factor analysis, and a value above 0.8 is considered very good. This means that our data is suitable for factor analysis, and there is sufficient correlation between variables for meaningful factor extraction. The Bartlett's test of sphericity has a p-value of **0.000** (less than 0.05), so we reject the null hypothesis that the correlation matrix is an identity matrix. This indicates that there are significant correlations between the variables, which makes factor analysis appropriate.

**Table 2: Reliability Test**

Construct	Alpha Value	Number of items
<b>Pdi</b>	0.7	3
<b>Prl</b>	0.791	3
<b>Mi</b>	0.789	2
<b>Gbo</b>	0.820	2
<b>Sup</b>	0.939	19

#### Source: Author's Computation

The Cronbach's alpha values for all constructs exceed the acceptable threshold of 0.7, indicating good reliability. Product innovation (0.7) is at the threshold, while process innovation (0.791), managerial innovation (0.789), green business opportunities (0.820), and sustainable performance (0.939) show good to excellent internal consistency.

**Table 3: Collinearity Test**

Constructs	Collinearity Tolerance	Variance Inflation Factor
<b>pdi</b>	.565	1.769
<b>prl</b>	.559	1.788
<b>mi</b>	.558	1.793
<b>gbo</b>	.590	1.694

**Source: Author’s Computation**

The collinearity tolerance values (0.558 to 0.590) and VIF values (1.694 to 1.793) indicate that multicollinearity is not an issue in the model. All values are within acceptable limits, suggesting that the independent variables are not highly correlated, ensuring reliable estimation of their effects on sustainable performance.

Post-Estimation Tests

**Table 4: Goodness-of-fit Test**

Fit statistic	Value	Description
Likelihood ratio		
chi2_ms(0)	0.000	model vs. saturated
p>chi2	.	
chi2_bs(4)	79.31	baseline vs. saturated
p>chi2	0.000	

**Source: Author’s Computation**

The Goodness-of-fit test comprised a baseline vs. saturated chi-squared test, with a significant p-value suggesting that the model provides a significantly better fit to the data than a model with no predictors. The **goodness-of-fit tests** support the validity of the regression model, indicating that the inclusion of the predictors improves the model significantly over a baseline model. This suggests that the predictors collectively explain the variability in the dependent variable.

**Table 5: Wald Test**

	$\chi^2$	df	p
observed			
sup	117.09	4	0

**Source: Author’s Computation**

The **Wald test** ( $\chi^2$ ) strongly suggests that the predictors are jointly significant in the regression model. Therefore, the model as a whole is statistically significant, and at least one of these variables is likely to have an effect on sustainable performance. Given that the p-value is extremely small, we can confidently conclude that the model provides a meaningful explanation of sustainable performance.

**Table 6: Cameron & Trivedi's decomposition of IM-test**

Source	$\chi^2$	df	p
Heteroskedasticity	10.54	14	0.7215
<b>Skewness</b>	4.02	4	0.4039
<b>Kurtosis</b>	0.49	1	0.4855
<b>Total</b>	15.05	19	0.7197

**Source: Author’s Computation**

The **White’s test** and **Cameron & Trivedi’s decomposition** both suggest that our model does not suffer from significant heteroskedasticity, skewness, or kurtosis. Since all p-values are large (greater than 0.05), we fail to reject the null hypotheses for all the tests, meaning the model’s residuals appear to satisfy the assumptions of homoskedasticity, normality (with respect to skewness and kurtosis), and no significant non-linearities. In summary, our model appears to be well-behaved in terms of the residuals, and there is no evidence of heteroskedasticity or other major violations of the model assumptions.

## FINDINGS

**Table 7: Model Fit**

<b>Number of obs</b>	<b>108</b>
<b>F(4,103)</b>	27.92
<b>Prob&gt;F</b>	0.000
<b>R-squared</b>	0.5202
<b>Adjusted R-squared</b>	0.5016
<b>RMSE</b>	0.3897

**Source: Author’s Computation**

The R-squared is 0.5202, which indicates that approximately 52% of the variability in the sustainable performance can be explained by product, process and managerial innovations as well as green business opportunities. This suggests a moderate level of fit between the model and the data. The Adjusted R-squared accounts for the number of predictors in the model, adjusting the R<sup>2</sup> statistic to penalise for overfitting. The value is 0.5016, which is very close to the regular R<sup>2</sup>, indicating that the number of predictors used in the model is appropriate. This shows that product, process and managerial innovations and green business opportunities explained 50.2% variation in the sustainable performance of MSMEs in Lagos state. In addition, RMSE is the standard deviation of the residuals (errors). A lower RMSE indicates better predictive accuracy. In this study, the RMSE is 0.3897, indicating that, on average, the model’s predictions deviate from the actual values by about 0.39 units. Furthermore, the F-statistic was used to determine the statistical significance of the model. The F-statistics (F(4,103)=27.92,  $p < 0.05$ ) suggest that the overall regression model is statistically significant, meaning that all the green entrepreneurship practices together are significantly related to the sustainable performance of MSMEs in Lagos state.

**Table 8: SEM Results**

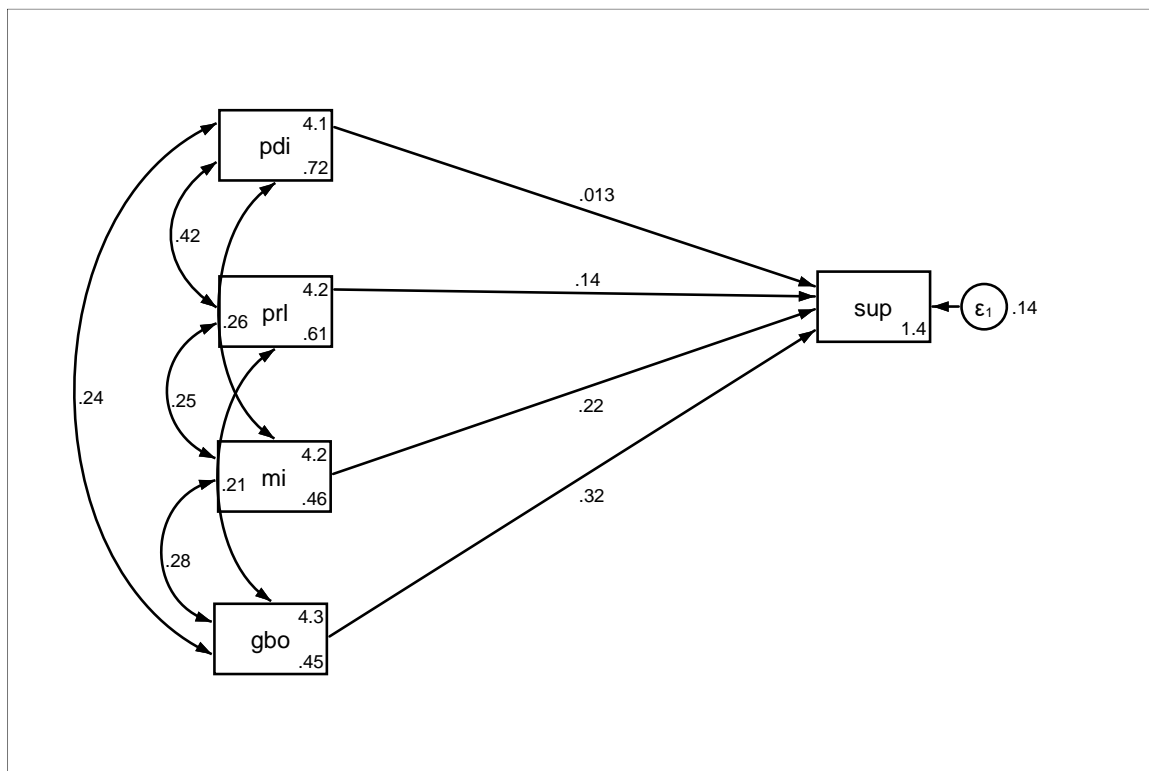
	Coef.	Std.Err.	z	P> z	[95% Conf. Interval]	
Structural						
Sup						
Pdi	0.012598	0.05735	0.22	0.826	-0.09981	0.125003
Prl	0.138222	0.062836	2.2	0.028	0.015061	0.261374
Mi	0.222488	0.072292	3.08	0.002	0.080797	0.364178
Gbo	0.316647	0.071422	4.43	0.000	0.176663	0.456631
_cons	1.410984	0.273741	5.15	0.000	0.874462	1.947506

**Source: Author’s Computation**

The result of the structural equation modelling (Figure 2) showed the direct effect of green entrepreneurship practices on the sustainable performance of the selected MSMEs in Lagos state. The result showed that product innovation ( $\beta=0.0126$ ,  $p > 0.05$ ) does not have a significant impact on the sustainable performance of the selected MSMEs. Furthermore, the results showed that process innovation ( $\beta=0.1382$ ,  $p < 0.05$ ) positively influences sustainable performance. In addition, managerial innovation ( $\beta=0.2225$ ,  $p < 0.05$ ) positively influences sustainable performance. Lastly, green business opportunities ( $\beta=0.3166$ ,  $p < 0.05$ ) have a strong positive impact on sustainable performance. The positive covariances indicate that product, process, managerial innovations, and green business opportunities tend to be correlated with one another.

Based on these results, we can conclude that **process innovation, managerial innovation, and green business opportunities** are important drivers of **sustainable performance** for MSMEs

in Lagos. These areas may be key focal points for businesses looking to enhance their sustainability efforts. Product innovation, on the other hand, does not show a significant direct impact in this model.



**Figure 2: SEM Diagram Showing the Relationship Between Green Entrepreneurship Practices and Sustainable Performance**

Source: Author's Computation

## Discussion

MSMEs play a key role in driving economic development in any country (Sharabati *et al.*, 2024), making green entrepreneurship practices essential for their sustainable performance. The current study found that **52% of the variance is explained** suggests a **moderate level of fit** between the model and the data. For MSMEs in Lagos, this indicates that these factors (product, process and managerial innovations, and green business opportunities) are relatively important in influencing their sustainable performance. MSMEs that are resource-constrained can adopt green entrepreneurship practices as a crucial transformation strategy to turn sustainability initiatives and digital investments into observable results (Karikari *et al.*, 2025). This outcome highlights that green entrepreneurship practices are essential resources for achieving sustainable performance amidst increasing competition and an evolving business environment. However, it also suggests that there are other factors (beyond the variables considered in this model) that could explain the remaining **48% of the variation**. MSMEs in Lagos may need to consider other aspects, such as market conditions, financial access, and government policies, which could play significant roles in shaping their sustainability performance (AlQershi *et al.*, 2023).

**The study found that process innovation, managerial innovation, and green business opportunities** were found to have a significant positive impact on sustainable performance. Ansari (2025) also affirmed that green entrepreneurship and innovation are critical to achieving

long-term sustainability objectives. By creating eco-friendly practices and looking into the potential for resilient communities, green entrepreneurship will guide management for protecting the environment and the planet (Avelar et al., 2024). These findings suggest that MSMEs in Lagos can enhance their sustainability by prioritising improvements in these areas. **Process innovations** streamline operations, **managerial innovations** foster better leadership and organisational practices, and **green business opportunities** offer avenues for eco-friendly practices that align with sustainability goals. Conversely, **product innovation** did not significantly influence sustainable performance, indicating that, within the context of Lagos MSMEs, enhancing product features alone may not be enough to drive sustainability. Yin et al. (2022) also discovered that green invention innovation does not affect overall firm performance, while green utility-model innovation is beneficial to SMEs' performance. However, the current study underscores the importance of a holistic approach that integrates process, managerial, and environmental strategies to enhance sustainability outcomes for MSMEs in Lagos.

## IMPLICATIONS AND RECOMMENDATIONS

Given the findings, here are a few actionable recommendations for MSMEs to improve their sustainable performance. MSMEs should embrace green business practices and technologies that reduce environmental impact. This can improve not only sustainability but also cost-efficiency in the long term. Focus on continuous product, process, and managerial innovations.

They should look for ways to differentiate products, optimise processes, and enhance management structures that support sustainability. Engage in partnerships with other businesses, government programs, or international organisations to foster green innovation and sustainability efforts. MSMEs should be mindful of other factors that could be affecting sustainability, such as the political and regulatory landscape in Lagos, and seek to align their strategies with these broader trends.

The study's findings suggest that **process innovation, managerial innovation, and green business opportunities** are key to enhancing the **sustainable performance** of MSMEs in Lagos. MSMEs must take a **holistic approach** that integrates these innovations while recognising that **product innovation** alone may not be sufficient to drive sustainability.

To achieve long-term sustainability, MSMEs in Lagos should prioritise operational efficiency, effective leadership, and eco-friendly practices while embracing innovation across various business functions. This strategy will enable them to remain competitive, contribute to sustainable development, and meet growing consumer and regulatory demands for the circular economy.

### Declaration of Interest

The Authors hereby declare that there is no conflict of interest.

## REFERENCES

- Al-Abadi, L. H., & Abu Rumman, A. R. (2023). Sustainable performance based on entrepreneurship, innovation, and green HRM in e-Business Firms. *Cogent Business & Management*, 10(1). <https://doi.org/10.1080/23311975.2023.2189998>
- AL-Dosari, K., Fetais, N., & Kucukvar, M. (2023). A shift to green cybersecurity sustainability development: Using triple bottom-line sustainability assessment in Qatar transportation sector.

*International Journal of Sustainable Transportation*, 17(12), 1287–1301.  
<https://doi.org/10.1080/15568318.2023.2171321>

- AlQershi, N. A., Saufi, R. B. A., Yaziz, M. F. B. A., Ramayah, T., Muhammad, N. M. N., & Yusoff, M. N. H. Bin. (2023). The relationship between green entrepreneurship, human capital and business sustainability in Malaysian large manufacturing firms: An empirical study. *Technological Forecasting and Social Change*, 192, 122529. <https://doi.org/10.1016/J.TECHFORE.2023.122529>
- Alwakid, W., Aparicio, S., & Urbano, D. (2021). The Influence of Green Entrepreneurship on Sustainable Development in Saudi Arabia: The Role of Formal Institutions. *International Journal of Environmental Research and Public Health*, 18(10), 5433. <https://doi.org/10.3390/ijerph18105433>
- Ansari, M. S. A. (2025). Innovation, and green entrepreneurship are catalysts for sustainability in Oman. *Cleaner Waste Systems*, 11, 100281. <https://doi.org/10.1016/J.CLWAS.2025.100281>
- Appiah, M. K., Sam, A., Twum, E., & Godslove, E. (2023). Modelling the influencing of green entrepreneurship orientation on sustainable firm performance: a moderated mediation model. *Economic Research-Ekonomska Istraživanja*, 36(2). <https://doi.org/10.1080/1331677X.2023.2179094>
- Aransyah, M. F., Hermanto, B., Muftiadi, A., & Oktadiana, H. (2025). Exploring sustainability oriented innovations in tourism: insights from ecological modernization, diffusion of innovations, and the triple bottom line. *Cogent Social Sciences*, 11(1). <https://doi.org/10.1080/23311886.2024.2447396>
- Asghar, N., Khattak, A., Danish, M. H., Bokhari, I. H., & Waris, M. (2023). Managerial skills, technology adaptation and firm performance: Mediating role of process innovation and product innovation. *Cogent Business & Management*, 10(3). <https://doi.org/10.1080/23311975.2023.2281485>
- Avelar, S., Borges-Tiago, T., Almeida, A., & Tiago, F. (2024). Confluence of sustainable entrepreneurship, innovation, and digitalization in SMEs. *Journal of Business Research*, 170. <https://doi.org/10.1016/j.jbusres.2023.114346>
- Baber, H., Sarango-Lalangui, P., Merkbawi, R., Fatorachian, H., & Maalouf, J. (2026). Green impact: Unveiling the influence of social and environmental values on sustainable entrepreneurship within regulatory boundaries. *Sustainable Technology and Entrepreneurship*, 5(1), 100121. <https://doi.org/10.1016/J.STAE.2025.100121>
- Badjeena, B. P., Ali, E., Wonyra, K. O., & Tamou, K. (2024). Green entrepreneurship: Opportunities and challenges for the transition to a circular economy in Togo, West Africa. *World Development Sustainability*, 5, 100181. <https://doi.org/10.1016/J.WDS.2024.100181>
- Bai, C., Dallasega, P., Orzes, G., & Sarkis, J. (2020). Industry 4.0 technologies assessment: A sustainability perspective. *International Journal of Production Economics*, 229, 107776. <https://doi.org/10.1016/j.ijpe.2020.107776>
- Baum, R. (2021). Sustainable Development – A Modern Understanding of The Concept. *Annals of the Polish Association of Agricultural and Agribusiness Economists*, XXIII(2), 9–29. <https://doi.org/10.5604/01.3001.0015.0026>
- Bengana, I., Mili, K., Sabri, M., & Rahma, Z. (2026). Sustainability-Performance Integration in Start-ups: A Structural Equation Modeling Analysis from Algeria. *Scientific African*, 31, e03173. <https://doi.org/10.1016/j.sciaf.2025.e03173>
- Bygrave, W. D., & Hofer, C. W. (1992). Theorizing about Entrepreneurship. *Entrepreneurship Theory and Practice*, 16(2), 13–22. <https://doi.org/10.1177/104225879201600203>
- Caiado, G. G., Quelhas, G. L., Nascimento, L. D. M., Anholon, R., & Filho, W. L. (2019). The Management of Operations Towards sustainability by aligning operational programmes and sustainable performance measures performance measures. *Production Planning & Control*, 30(5–6), 413–425. <https://doi.org/10.1080/09537287.2018.1501817>

- Chen, J., & Liu, L. (2020). Customer participation, and green product innovation in SMEs: The mediating role of opportunity recognition and exploitation. *Journal of Business Research*, *119*, 151–162. <https://doi.org/10.1016/j.jbusres.2019.05.033>
- Dewiyani, L., Marini, A., Yarmi, G., Nelfiyanti, Atmanto, D., Salim, S., Safitri, D., Irwansyah, P., Zahari, M., Saputro, R. H., & Marfu, A. (2025). Eco-innovation and green entrepreneurship: Transforming challenges into opportunities for the environment. *Cleaner Environmental Systems*, *19*, 100345. <https://doi.org/10.1016/J.CESYS.2025.100345>
- Elkington, J. (1998). *Cannibals with Forks: The Triple Bottom Line of 21st Century Business* (2nd ed.). Capstone Publishing Ltd.
- Elkington, J. (2013). Enter the triple bottom line. *The Triple Bottom Line: Does It All Add Up*, *1*(1986), 1–16. <https://doi.org/10.4324/9781849773348>
- Gashema, B., & Gao, Y. (2018). Strengthening Managerial Innovation Behavior in the SMEs. *International Journal of Research in Business and Social Science* (2147- 4478), *7*(3), 36–56. <https://doi.org/10.20525/ijrbs.v7i3.883>
- Ghodbane, A., & Alwehabe, A. (2023). Academic Entrepreneurial Support, Social Capital, and Green Entrepreneurial Intention: Does Psychological Capital Matter for Young Saudi Graduates? *Sustainability (Switzerland)*, *15*(15). <https://doi.org/10.3390/su151511827>
- Ginting, PJP. (2020). Sustainable Growth and Development. *Proceedings of the 23rd Asian Forum of Business Education (AFBE 2019)*. <https://doi.org/10.2991/aebmr.k.200606.082>
- Ismail, I. J. (2022). Entrepreneurs' competencies and sustainability of small and medium enterprises in Tanzania. A mediating effect of entrepreneurial innovations. *Cogent Business and Management*, *9*(1). <https://doi.org/10.1080/23311975.2022.2111036>
- Jeronen, E. (2023). Economic Sustainability. In *Encyclopedia of Sustainable Management* (pp. 1257–1263). Springer International Publishing. [https://doi.org/10.1007/978-3-031-25984-5\\_197](https://doi.org/10.1007/978-3-031-25984-5_197)
- Karikari, F. A., Boateng, S. A., Fumey, M. P., Opoku, A., & Adela, V. (2025). Digital transformation and green practices: pathways to sustainable SME performance in Ghana. *Scientific African*, *30*. <https://doi.org/10.1016/j.sciaf.2025.e03026>
- Karimi, R. F., & Nabavi Chashmi, S. A. (2019). Designing Green Entrepreneurship Model in Sustainable Development Consistent with the Performance of Tehran Industrial Towns. *Journal of Business-to-Business Marketing*, *26*(1), 95–102. <https://doi.org/10.1080/1051712X.2019.1565143>
- Kirchherr, J., Reike, D., & Hekkert, M. (2017). Conceptualizing the circular economy: An analysis of 114 definitions. *Resources, Conservation and Recycling*, *127*, 221–232. <https://doi.org/10.1016/j.resconrec.2017.09.005>
- Laosirihongthong, T., Samaranayake, P., Nagalingam, S. V., & Adebajo, D. (2020). Prioritization of sustainable supply chain practices with triple bottom line and organizational theories: industry and academic perspectives. *Production Planning & Control*, *31*(14), 1207–1221. <https://doi.org/10.1080/09537287.2019.1701233>
- Lotfi, M., Yousefi, A., & Jafari, S. (2018). The Effect of Emerging Green Market on Green Entrepreneurship and Sustainable Development in Knowledge-Based Companies. *Sustainability*, *10*(7), 2308. <https://doi.org/10.3390/su10072308>
- Luo, Y., Lu, Z., & Wu, C. (2023). Can internet development accelerate the green innovation efficiency convergence: Evidence from China. *Technological Forecasting and Social Change*, *189*, 122352. <https://doi.org/10.1016/j.techfore.2023.122352>
- Matthews, R. L., Tse, Y. K., O'Meara Wallis, M., & Marzec, P. E. (2019). A stakeholder perspective on process improvement behaviours: delivering the triple bottom line in SMEs. *Production Planning & Control*, *30*(5–6), 437–447. <https://doi.org/10.1080/09537287.2018.1501809>

- Meshram, K. K. (2024). The circular economy, 5R framework, and green organic practices: pillars of sustainable development and zero-waste living. *Discover Environment*, 2(1), 147. <https://doi.org/10.1007/s44274-024-00177-4>
- Mishra, R., & Kiran, K. B. (2026). Is sustainable performance in MSMEs driven by entrepreneurial orientation through knowledge management and dynamic capabilities? *Journal of Knowledge Management*, 30(1), 231–262. <https://doi.org/10.1108/JKM-04-2025-0575>
- Mohd Saman, N. R., Mahmud, N., Mat Nor, N., & Kamaludin, M. A. (2025). Sustainability Performance of Small And Medium Enterprises (SMEs) Within The Service Sector. *INSIGHT Journal*, 12(1), 13–29. <https://doi.org/10.24191/ij.v12i1.3817>
- Mondal, S., Singh, S., & Gupta, H. (2023). Green entrepreneurship and digitalization enabling the circular economy through sustainable waste management - An exploratory study of emerging economy. *Journal of Cleaner Production*, 422, 138433. <https://doi.org/10.1016/J.JCLEPRO.2023.138433>
- Mukti Diapopin, Naufal Raid, Seven Putra, Yurismen Effendi, & Yenni Jufri. (2025). Green Entrepreneurship in MSMEs: Marketing Challenges and Opportunities in the Context of Sustainability. *Quantitative Economics and Management Studies*, 6(2), 246–263. <https://doi.org/10.35877/454RI.qems3934>
- Neumann, T. (2022). Impact of green entrepreneurship on sustainable development: An ex-post empirical analysis. *Journal of Cleaner Production*, 377, 134317. <https://doi.org/10.1016/J.JCLEPRO.2022.134317>
- Oduro, S. (2024). Eco-innovation and SMEs' sustainable performance: a meta-analysis. *European Journal of Innovation Management*, 27(9), 248–279. <https://doi.org/10.1108/EJIM-11-2023-0961>
- Öztürk, R., Öztürk, M., & Kızıllkan, Z. (2024). Meta-Analysis of the Relationship Between Green Entrepreneurial Orientation and Sustainable Firm Performance. *Sustainability*, 16(24), 11224. <https://doi.org/10.3390/su162411224>
- Polas, M. R. H., Kabir, A. I., Sohel-Uz-zaman, A. S. M., Karim, R., & Tabash, M. I. (2022). Blockchain Technology as a Game Changer for Green Innovation: Green Entrepreneurship as a Roadmap to Green Economic Sustainability in Peru. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(2). <https://doi.org/10.3390/joitmc8020062>
- Pwc. (2024). *MSME Survey 2024*. <https://www.pwc.com/ng/en/assets/pdf/pwc-msme-survey-report-2024.pdf>
- Qi, X., & Yang, Z. (2023). Drivers of green innovation in BRICS countries: exploring tripple bottom line theory. *Economic Research-Ekonomiska Istraživanja*, 36(3). <https://doi.org/10.1080/1331677X.2022.2150670>
- Rodrigues, M., & Franco, M. (2023). Green Innovation in Small and Medium-Sized Enterprises (SMEs): A Qualitative Approach. *Sustainability (Switzerland)*, 15(5). <https://doi.org/10.3390/su15054510>
- Salau, S. (2025, March 8). 30% of Nigeria's MSMEs shut down within two years – NESG. *The Guardian*. [https://guardian.ng/business-services/business/30-of-nigerias-msmes-shut-down-within-two-years-nesg/?utm\\_source=chatgpt.com](https://guardian.ng/business-services/business/30-of-nigerias-msmes-shut-down-within-two-years-nesg/?utm_source=chatgpt.com)
- Sapta, I. K. S., Sudja, I. N., Landra, I. N., & Rustiarini, N. W. (2021). Sustainability Performance of Organization: Mediating Role of Knowledge Management. *Economies*, 9(3), 97. <https://doi.org/10.3390/economies9030097>
- Senyo, P. K., & Osabutey, E. L. C. (2023). Transdisciplinary perspective on sustainable multi-tier supply chains: a triple bottom line inspired framework and future research directions. *International Journal of Production Research*, 61(14), 4918–4933. <https://doi.org/10.1080/00207543.2021.1946194>
- Sharabati, A.-A. A., Ali, A. A. A., Allahham, M. I., Hussein, A. A., Alheet, A. F., & Mohammad, A. S. (2024). The Impact of Digital Marketing on the Performance of SMEs: An Analytical

- Study in Light of Modern Digital Transformations. *Sustainability*, 16(19), 8667. <https://doi.org/10.3390/su16198667>
- SMEDAN. (2021). National Policy on Micro, Small and Medium Enterprises. In *SMEDAN*. <https://smedan.gov.ng/images/PDF/MSME-National-Policy.pdf>
- Teixeira, N. (2025). Circular economy perspectives: challenges, innovations, and sustainable futures. *Discover Sustainability*, 6(1), 738. <https://doi.org/10.1007/s43621-025-01606-x>
- Utami, S., Siskawati, E., & Fauzi, N. (2024). Resource Utilization, Innovation, and MSME Performance: A Circular Economy Perspective. *Economics, Business, Accounting & Society Review*, 3(3), 217–229. <https://doi.org/10.55980/ebasr.v3i3.154>
- Vasilescu, M. D., Dimian, G. C., & Gradinaru, G. I. (2023). Green entrepreneurship in challenging times: a quantitative approach for European countries. *Economic Research-Ekonomska Istrazivanja*, 36(1), 1828–1847. <https://doi.org/10.1080/1331677X.2022.2093767>
- Wang, S., & Zhang, H. (2025). Enhancing SMEs sustainable innovation and performance through digital transformation: Insights from strategic technology, organizational dynamics, and environmental adaptation. *Socio-Economic Planning Sciences*, 98, 102124. <https://doi.org/10.1016/J.SEPS.2024.102124>
- Yin, C., Salmador, M. P., Li, D., & Lloria, M. B. (2022). Green entrepreneurship and SME performance: the moderating effect of firm age. *International Entrepreneurship and Management Journal*, 18(1), 255–275. <https://doi.org/10.1007/s11365-021-00757-3>
- Zaman, M., Tanewski, G., & Ekanayake, G. (2025). What does sustainability mean for small and medium enterprises: A systematic literature review. *Journal of Cleaner Production*, 492. <https://doi.org/10.1016/j.jclepro.2025.144830>