

The Nexus Between Green Leadership Practices and Organizational Competitiveness among Synthetic Production Firms in Delta State, Nigeria

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ABSTRACT

This study examined the nexus between *Green Leadership and Organizational Competitiveness* among synthetic production firms in Delta State, Nigeria. The increasing global demand for sustainable business practices has made green leadership a crucial determinant of organizational success. The study specifically explores the effect of **green sustainable decision-making** and **green environmental stewardship** on the competitiveness of synthetic production firms. To achieve this objective, two research questions were raised, leading to the formulation of two hypotheses. The study adopted a **descriptive survey research design**, with a total population of **10850**, where 371 were sampled using Krejcie and Morgan Sample Size Calculation. Structured questionnaire was the instrument used for data collection, of which **315 valid responses** were retrieved and analyzed using **multiple regression analysis**. The findings revealed that **green sustainable decision-making** has a **significant positive effect** on organizational competitiveness ($\beta = 0.914$, $p < 0.05$). Similarly, **green environmental stewardship** was found to have a **significant positive effect** on organizational competitiveness ($\beta = 0.087$, $p < 0.05$). The adjusted **R² value of 0.895** implies that approximately **89.5% of the variation in organizational competitiveness** can be explained by the independent variables. Based on the results and findings, it is recommended that synthetic production firms **integrate green leadership principles into their core business strategies** and **increase investment in sustainable innovations**. These measures will not only enhance competitiveness but also ensure environmental responsibility and long-term business sustainability.

Keywords: Green Leadership, Green Sustainable Decision-Making, Green Environmental Stewardship, Organizational Competitiveness

INTRODUCTION

The increasing global focus on sustainability and environmental preservation has fundamentally reshaped leadership approaches within organizations, particularly in production-based industries. Green leadership, a concept emphasizing the integration of environmental considerations into organizational strategies, has gained prominence as firms strive to balance profitability with ecological responsibility. This leadership style underscores the importance of sustainable decision-making and environmental stewardship, aligning organizational goals with societal expectations for sustainability (Chen & Chang, 2022). For synthetic production firms, which are often associated with high resource consumption and environmental impact, adopting green leadership practices is no longer optional but a strategic necessity to remain competitive. Sustainable decision-making, a core component of green leadership, involves the deliberate incorporation of ecological considerations into strategic choices to mitigate environmental harm while enhancing operational efficiency. Such decisions are increasingly recognized as critical drivers of organizational competitiveness in today's globalized economy (Kumar et al., 2021). Environmental stewardship, another vital dimension of green leadership, refers to an organization's proactive efforts to protect natural resources and foster community trust through sustainable practices. These green leadership attributes are pivotal for synthetic production firms, where sustainability challenges such as resource depletion and waste management directly impact long-term competitiveness (Dhir et al., 2023). Organizational competitiveness, which reflects a firm's ability to maintain superior performance

relative to its peers, is significantly influenced by the adoption of green practices. Firms that prioritize sustainable practices often achieve competitive advantages through cost efficiency, enhanced innovation, and improved brand reputation (Ahmed & Shafiq, 2021). Synthetic production firms, in particular, can leverage green leadership to reduce waste, optimize resource use, and address the growing demand for eco-friendly products. Moreover, green leadership enables firms to comply with environmental regulations, attract environmentally conscious investors, and access new markets, thereby strengthening their competitive edge (Zhang et al., 2023).

In Delta State, Nigeria, synthetic production firms face unique challenges, including limited regulatory enforcement, fluctuating economic conditions, and rising environmental awareness among stakeholders. Despite these challenges, there is growing recognition of the need to align business operations with sustainable practices to achieve organizational competitiveness. Green leadership provides a strategic pathway for synthetic production firms in Delta State to address these challenges by integrating sustainable decision-making and environmental stewardship into their operations. This study, therefore, seeks to examine the nexus between green leadership and organizational competitiveness, focusing on the synthetic production sector in Delta State. The findings aim to provide actionable insights for enhancing sustainability and fostering competitiveness in this critical industry.

Statement of the Problem

The synthetic production industry in Delta State, Nigeria, is characterized by significant environmental challenges, including high resource consumption, waste generation, and pollution, which have raised concerns among stakeholders and regulatory bodies. Despite the global push towards sustainability, many synthetic production firms in the region continue to face difficulties integrating green practices into their operations, largely due to inadequate leadership commitment to environmental goals and limited adoption of sustainable decision-making and environmental stewardship. This has not only led to environmental degradation but also diminished organizational competitiveness as firms struggle with inefficiencies, regulatory non-compliance, and reduced market appeal among environmentally conscious customers. While green leadership has been identified as a strategic tool for balancing ecological responsibility and economic performance, there is insufficient empirical evidence on how its components, green sustainable decision-making and green environmental stewardship, impact the competitiveness of synthetic production firms in Delta State. This study seeks to address this gap by exploring the nexus between green leadership and organizational competitiveness in the context of these firms.

Research Questions

The following research questions guided this study:

- i. what is the effect of green sustainable decision-making on organizational competitiveness among synthetic production firms in Delta State?
- ii. how does green environmental stewardship affect organizational competitiveness among synthetic production firms in Delta State?

Objectives of the Study

The main objective of this study is to examine the nexus between green leadership and organizational competitiveness among synthetic production firms in Delta State, Nigeria.

The specific objectives are to:

- i. determine the relationship between green sustainable decision-making and organizational competitiveness among synthetic production firms in Delta State.
- ii. assess the impact of green environmental stewardship on organizational competitiveness among synthetic production firms in Delta State.

Hypotheses of the Study

H₀₁: There is no significant effect of green sustainable decision-making and organizational competitiveness among synthetic production firms in Delta State.

H02: There is no significant effect of green environmental stewardship on organizational competitiveness among synthetic production firms in Delta State.

REVIEW OF RELATED LITERATURE

Conceptualization of the Study

This study is conceptualized around the intersection of green leadership and organizational competitiveness, focusing on the synthetic production firms in Delta State, Nigeria. Green leadership, as an evolving leadership paradigm, emphasizes sustainable decision-making and environmental stewardship to align organizational practices with environmental sustainability goals while maintaining economic viability (Chen et al., 2023). The concept of green sustainable decision-making highlights the importance of integrating ecological considerations into strategic planning, fostering innovation, and ensuring resource efficiency (Kumar & Singh, 2022). On the other hand, green environmental stewardship reflects a firm's commitment to proactive environmental protection, regulatory compliance, and community engagement (Dhir et al., 2023). Organizational competitiveness, defined by a firm's ability to sustain superior performance relative to peers, is increasingly influenced by the adoption of green practices, as these practices enhance brand reputation, operational efficiency, and market responsiveness (Ahmed & Shafiq, 2021). This study posits that the integration of green leadership components can act as a catalyst for organizational competitiveness, offering a strategic pathway for synthetic production firms to thrive in a sustainability-driven business environment.

Concept of Green Sustainable Decision-Making

Green sustainable decision-making (GSDM) is a leadership approach that integrates environmental sustainability into the core of organizational decision-making processes. It involves aligning business strategies with ecological considerations to promote resource efficiency, minimize environmental impact, and achieve long-term sustainability goals. Singh and Verma (2023) argue that organizations practicing GSDM not only reduce their ecological footprint but also foster innovation by adopting environmentally friendly technologies and practices. This approach requires leaders to evaluate the environmental consequences of their decisions at every stage, ensuring that sustainability becomes an integral part of the organizational ethos.

At its core, GSDM emphasizes the triple-bottom-line approach, focusing on the balance between economic, environmental, and social objectives. Leaders adopting GSDM prioritize renewable energy use, waste reduction, and circular economy practices to enhance environmental outcomes without compromising profitability (Kumar et al., 2022). Additionally, GSDM encourages stakeholder engagement, as organizations are increasingly held accountable for their environmental impact by customers, regulators, and investors. As noted by Lopez and Martinez (2023), stakeholder demands for green accountability have prompted firms to incorporate environmental metrics into their strategic frameworks. Effective implementation of GSDM requires robust frameworks and tools that support evidence-based decision-making. Tools such as lifecycle analysis, sustainability reporting, and environmental impact assessments help organizations evaluate their operations and make informed decisions (Green & Hughes, 2023). These frameworks enable firms to identify areas for improvement, optimize resource utilization, and create value through sustainable innovation. Moreover, integrating GSDM into corporate governance ensures that environmental considerations are embedded in decision-making processes at all organizational levels. Research also highlights the role of leadership in driving GSDM practices. Leaders who demonstrate a commitment to sustainability inspire organizational change and cultivate a culture of environmental responsibility (Miller et al., 2023). By fostering transparency, encouraging employee participation, and setting clear sustainability goals, green leaders position their organizations to gain a competitive advantage. Ultimately, GSDM is not merely an operational choice but a strategic imperative for organizations seeking to thrive in a global economy that increasingly prioritizes environmental sustainability.

Concept of Green Environmental Stewardship

Green environmental stewardship refers to the responsibility of organizations and individuals to manage and protect the environment through sustainable practices and proactive engagement. This concept emphasizes the ethical obligation to reduce environmental harm while promoting practices that conserve resources and enhance

ecological balance. Organizations embracing green environmental stewardship focus on minimizing their ecological footprint by implementing strategies such as pollution control, waste management, and energy conservation (Chen et al., 2023). By integrating stewardship into their operational and strategic decisions, businesses not only meet regulatory standards but also address stakeholder expectations for environmental accountability.

Green environmental stewardship extends beyond compliance to involve voluntary and innovative practices that enhance an organization's environmental impact. According to Jackson and Lee (2022) and Aruoren and Tarurhor (2023), firms demonstrating stewardship often engage in initiatives such as reforestation projects, community-based environmental programs, and adoption of renewable energy technologies. These actions signal a commitment to sustainability and contribute to strengthening the organization's reputation and brand equity. In industries such as manufacturing, where environmental degradation risks are high, adopting green stewardship practices can serve as a critical factor for gaining competitive advantage and fostering customer loyalty.

The successful implementation of green environmental stewardship often requires an inclusive approach that involves collaboration with various stakeholders. As noted by Okoro et al. (2023) and Omoye, et al (2024), partnerships between organizations, governments, and communities play a pivotal role in achieving long-term environmental goals. Through corporate social responsibility (CSR) initiatives and environmental education programs, organizations can influence positive behavioral changes in society. Moreover, stewardship frameworks that incorporate monitoring and reporting systems ensure transparency and continuous improvement in environmental performance.

Leadership plays a significant role in driving green environmental stewardship within organizations. Green leaders act as change agents, fostering a culture of environmental responsibility and embedding stewardship values across organizational structures (Ahmed & Bello, 2023). They inspire employees to adopt sustainable practices and actively engage in environmental initiatives. Ultimately, green environmental stewardship transcends individual organizations, contributing to broader societal efforts to combat climate change, preserve biodiversity, and ensure sustainable development for future generations.

Concept of Organizational Competitiveness

Organizational competitiveness refers to an organization's ability to achieve superior performance relative to its peers in the same industry, ensuring long-term sustainability and growth. This concept encompasses various dimensions, including market share, profitability, innovation, customer satisfaction, and operational efficiency. Competitiveness is influenced by both internal factors, such as leadership, strategy, and resource management, and external factors, such as market trends, technological advancements, and regulatory frameworks. According to Porter (2023) and Omoye (2025), organizations sustain competitiveness by leveraging their unique resources and capabilities to create value that is difficult for competitors to replicate. In today's dynamic business environment, organizational competitiveness increasingly hinges on adaptability and innovation. Firms must anticipate changes in the external environment and respond proactively to evolving customer preferences, technological disruptions, and sustainability demands (Nguyen & Zhang, 2022). By fostering innovation and adopting cutting-edge technologies, organizations can enhance their efficiency and offer differentiated products or services that meet the needs of diverse market segments. Competitiveness is not just about excelling in current markets but also about building resilience to navigate uncertainties and seize emerging opportunities.

Environmental sustainability has emerged as a key driver of organizational competitiveness in recent years. Customers, investors, and regulators are placing greater emphasis on environmental responsibility, compelling organizations to integrate green practices into their operations (Patel & Singh, 2023 & Omoye et al, 2024). Companies that adopt sustainable strategies, such as reducing carbon emissions and optimizing resource usage, often experience enhanced brand reputation and customer loyalty. Additionally, environmentally conscious firms benefit from cost savings through energy efficiency and waste reduction, further strengthening their competitive position.

Leadership and organizational culture play a pivotal role in fostering competitiveness. Leaders who prioritize continuous improvement and empower their teams to embrace innovation and collaboration contribute

significantly to an organization’s competitive edge (Omoye, 2025 & Garcia et al., 2023). Moreover, organizations that cultivate a culture of learning, adaptability, and customer focus are better positioned to sustain competitiveness in a rapidly changing global economy. Overall, organizational competitiveness is a multidimensional construct that requires a strategic balance between operational excellence, market responsiveness, and sustainable development.

Conceptual framework

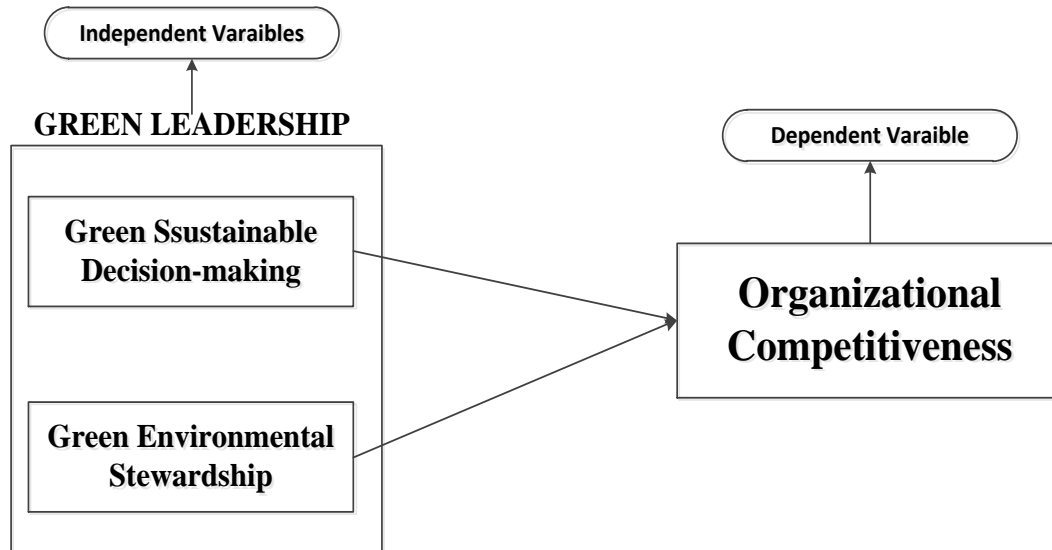


Fig. 1: Conceptualization of the nexus between green leadership and organizational competitiveness among synthetic production firms (Sources: Researcher, 2024)

Theoretical Review

The study was based on the Resource-Based View as follows:

i) Resource-Based View (RBV) Theory

The Resource-Based View (RBV) theory, proposed by Barney (1991), posits that an organization's competitive advantage is primarily derived from its unique resources and capabilities, which are valuable, rare, inimitable, and non-substitutable (VRIN). These resources include tangible assets, such as technology and infrastructure, and intangible assets, such as leadership skills, organizational culture, and environmental stewardship practices. The RBV emphasizes that sustained competitiveness is achieved when organizations leverage their distinctive internal resources to create superior value compared to their competitors. In recent studies, the theory has been extended to emphasize the role of sustainability-oriented resources, such as green decision-making frameworks and environmentally conscious leadership, in driving competitive advantage (Ahmed et al., 2023).

The RBV theory is highly applicable to this study as it underscores how green leadership practices, including sustainable decision-making and environmental stewardship, can enhance organizational competitiveness among synthetic production firms. Green sustainable decision-making represents a valuable and inimitable resource, as it allows firms to optimize resource efficiency, comply with environmental regulations, and innovate in eco-friendly practices, thus differentiating them in the market. Similarly, environmental stewardship fosters stakeholder trust and improves brand reputation, which are intangible resources critical for competitiveness. By adopting RBV, the study demonstrates that synthetic firms in Delta State can gain a strategic edge by integrating green practices into their leadership models, thereby aligning their internal resources with the demands of a sustainability-driven global economy (Chen & Lee, 2022).

Empirical Review

Green leadership practices have gained global attention as a strategic approach to enhancing organizational competitiveness. Ahmed et al. (2023) explored Green Leadership Practices and Organizational Competitiveness

in the Manufacturing Sector of South Asia. Using a mixed-methods approach with a sample of 250 manufacturing firms, the study revealed that green leadership practices, including sustainable decision-making and environmental stewardship, significantly enhanced operational efficiency and brand loyalty. This finding aligns with the current study's emphasis on synthetic production firms but differs geographically and industry-wise, focusing on South Asia's manufacturing sector. Similarly, Bello and Zhang (2022), in their research titled *Environmental Stewardship as a Strategic Tool for Competitive Advantage in Emerging Markets*, examined ten firms using a qualitative case study approach. The study concluded that proactive environmental stewardship fosters market differentiation and customer loyalty, underlining the strategic role of leadership in environmental practices. These findings complement the present study by emphasizing environmental stewardship's significance in achieving competitiveness, particularly in resource-constrained environments like Delta State.

Chen and Lee (2022) investigated the concept of green decision-making in their study titled *Green Decision-Making Processes and Organizational Success in High-Tech Firms*. A longitudinal survey of 300 employees in high-tech firms demonstrated that green decision-making positively impacts organizational performance through innovation and resource optimization. While their focus on high-tech firms differs from the synthetic production firms in Delta State, their findings reinforce the link between green decision-making and competitiveness, a central theme of the current research. Garcia et al. (2023) explored the role of green leadership in their study, *The role of Green Leadership in Enhancing Corporate Sustainability and Market Performance*. Using a quantitative design with data from 150 European firms, they found that green leadership practices significantly improved market performance and sustainability when aligned with corporate social responsibility (CSR). This aligns with the present study's focus on green leadership as a driver of competitiveness but differs by situating its context within the European Union rather than Nigeria.

Patel and Singh (2023) contributed to the discourse on sustainability with their study, *Sustainability and Competitiveness: A Study of Indian SMEs*. Through a cross-sectional survey of 200 SMEs, the researchers established that adopting green practices like waste management and eco-friendly technologies contributes significantly to long-term competitiveness. Although their study focused on SMEs, the insights into how green practices drive competitiveness align closely with the theoretical framework of the current study, highlighting parallels in the role of sustainability. Jackson and Lee (2022), in their study titled *The Impact of Environmental Stewardship on Organizational Reputation and Competitiveness*, examined three multinational corporations using a case study method. They revealed that environmental stewardship enhances organizational reputation, which subsequently improves competitiveness. While their focus on multinational corporations differs from synthetic production firms in Delta State, the study's emphasis on reputational benefits provides valuable insights into the broader impact of environmental stewardship.

On a nutshell, Okoro et al. (2023) focused on the Nigerian context in their research titled *Green Practices and Organizational Performance in Nigeria's Manufacturing Sector*. Using a survey of 100 manufacturing firms, they found a strong positive relationship between green practices and organizational performance, particularly in cost reduction and market expansion. This study closely aligns with the current research by exploring the role of green practices in competitiveness within Nigeria, offering localized evidence to support the study's objectives.

Research Gap

Despite the growing body of literature on green leadership and organizational competitiveness, significant gaps remain, particularly in the context of synthetic production firms in developing economies like Nigeria. Studies such as Ahmed et al. (2023) and Okoro et al. (2023) have highlighted the positive impact of green practices on organizational performance, but these are often focused on broader manufacturing sectors or multinational corporations, leaving synthetic production firms underexplored. Additionally, while research by Bello and Zhang (2022) emphasizes environmental stewardship, it does not specifically address how this concept translates into competitiveness in resource-constrained environments. This study seeks to fill these gaps by examining the nuanced relationship between green leadership, specifically green sustainable decision-making and environmental stewardship and organizational competitiveness within the unique socio-economic and industrial context of Delta State, Nigeria.

METHODOLOGY

This study adopted a descriptive survey research design to examine green leadership and organizational competitiveness among synthetic production firms in Delta State, Nigeria. The design facilitated the collection of quantitative data through structured questionnaires, enabling the assessment of green sustainable decision-making, green environmental stewardship, and organizational competitiveness in their natural settings without manipulation. The population comprised 10,850 employees, including top-level managers, middle-level managers, operations staff, and other personnel involved in implementing green leadership practices and enhancing competitiveness (NRPPM, 2024). A sample size of 371 was determined using the Krejcie and Morgan sample size formula at a 95% confidence level and 5% margin of error (Syed, 2021). The primary data collection instrument was a structured questionnaire with closed-ended Likert-scale items, organized into sections covering demographic information, green leadership practices, and organizational competitiveness. Content validity was ensured through expert review in organizational leadership and environmental management, while reliability was confirmed through a pilot study involving 30 respondents, yielding a Cronbach’s alpha coefficient of 0.73, indicating acceptable internal consistency. Data were collected through both physical distribution and online administration of questionnaires, supported by trained research assistants and follow-up mechanisms such as reminders to improve response rates. The data analysis involved both descriptive and inferential statistical techniques, with frequencies, means, and standard deviations used to summarize responses, and regression analysis alongside Pearson correlation employed to test the study hypotheses. All analyses were conducted using EViews 9.0 software at a 0.05 level of significance.

Model Specification

The study aims to examine the effect of green leadership on organizational competitiveness using two independent variables: Green Sustainable Decision-Making (GSD) and Green Environmental Stewardship (GES). The dependent variable is Organizational Competitiveness (OC).

The multiple regression model is expressed mathematically as:

$$OC = \beta_0 + \beta_1 GSD + \beta_2 GES + \epsilon$$

Where:

OC = Organizational Competitiveness

GSD = Green Sustainable Decision-Making

GES = Green Environmental Stewardship

β_0 = Intercept (constant term)

β_1, β_2 = Coefficient measuring the effect of Green Sustainable Decision-Making

ϵ = Error term accounting for unexplained variability

RESULT

Data presentation

Table 1: Analysis of Questionnaire

Questionnaire	Frequency	Percentage
Returned	315	65%
Not used	56	15%
Total Distributed	371	100%

Researcher’s fieldwork 2026

The analysis of the questionnaire distribution and response rate in Table 1 reveals that out of the 371 questionnaires distributed, 315 were successfully completed and returned, representing a 65% response rate. This indicates a strong participation level from the respondents, which enhances the reliability of the study’s findings. However, 56 questionnaires (15%) were deemed unusable due to incomplete responses, inconsistencies, or other factors affecting data quality. Despite this, the overall response rate is adequate for robust statistical analysis, as Baruch and Holtom (2020) suggest that a response rate above 50% is considered acceptable in organizational research. Thus the data were used for analysis.

Table 2: Analysis of Demographic Characteristics

Characteristics	Frequency	Percentage (%)
Gender		
Male	180	57.1
Female	135	42.9
Total	315	100
Age		
Below 25	50	15.9
25–34	110	34.9
35–44	80	25.4
45–54	55	17.5
55 and above	20	6.3
Total	315	100
Educational Qualification		
NCE/OND	40	12.7
Bachelor's Degree/HND	140	44.4
PD/MBA/MSc/Ph.D	25	7.9
Professional certificate	110	35.0
Total	315	100
Job Position		
Operational Level	150	47.6
Supervisory Level	100	31.7
Managerial	40	12.7
Other Staff	25	7.9
Total	315	100
Years of Experience		
Less than 1 year	40	12.7
1–5 years	100	31.7
6–10 years	95	30.2
11–15 years	50	15.9
Over 15 years	30	9.5
Total	315	100

Source: Researcher’s Computation, 2026

The analysis of Table 2 provides insights into the demographic distribution of respondents, helping to understand the structure of the workforce in synthetic production firms in Delta State, Nigeria. Gender distribution shows that 180 respondents (57.1%) are male, while 135 respondents (42.9%) are female. This suggests a relatively balanced workforce, with a slightly higher proportion of male employees. The insignificant female representation highlights the increasing inclusion of women in synthetic production firms, which were traditionally male-dominated. The age analysis shows that the majority of respondents fall within the 25–34 years age group (34.9%), followed by those aged 35–44 years (25.4%). Employees aged 45–54 years (17.5%) and 55 years and above (6.3%) are less represented, indicating that the workforce is predominantly young and within their prime

working years. This suggests that the industry relies on energetic and relatively young employees, with fewer older staff in senior roles. Meanwhile, from educational qualification, the highest proportion of respondents, 140 (44.4%), hold a Bachelor's Degree/HND, indicating a well-educated workforce. Additionally, 110 respondents (35.0%) possess professional certifications, reflecting the industry's need for specialized technical knowledge. Those with NCE/OND (12.7%) and PD/MBA/MSc/Ph.D. degrees (7.9%) form a smaller percentage, suggesting that practical and technical certifications are highly valued in the sector.

The majority of respondents, 150 (47.6%), work at the operational level, followed by 100 (31.7%) at the supervisory level. The managerial level (12.7%) and other staff (7.9%) account for a smaller proportion, indicating that the industry consists mostly of frontline employees who engage in production-related tasks, with fewer individuals occupying managerial and administrative positions. On years of Experience, the distribution of work experience shows that 100 respondents (31.7%) have 1–5 years of experience, while 95 respondents (30.2%) have been employed for 6–10 years. This indicates that a large portion of the workforce has a moderate level of experience. Employees with 11–15 years of experience (15.9%) and over 15 years (9.5%) form a smaller proportion, suggesting a relatively younger workforce. Meanwhile, 40 respondents (12.7%) have less than one year of experience, highlighting the presence of new entrants into the industry. The demographic analysis suggests that synthetic production firms in Delta State have a predominantly young and moderately experienced workforce, with a balanced gender composition and a strong emphasis on technical and professional qualifications.

Analysis of Question Items

Table 3: Green Sustainable Decision-Making (GSD)

S/N	Question Items	Mean	Std
1	Does your organization prioritize sustainable decision-making in operations?	3.44	1.37
2	Are environmental factors integrated into decision-making processes?	3.45	1.36
3	To what extent does your organization consider long-term environmental sustainability?	3.45	1.35
4	Does your organization adopt sustainability principles in project evaluation and selection?	3.43	1.35
5	Are employees involved in sustainable decision-making processes?	3.44	1.38
	Mean total	3.45	1.36

Researcher's compilation, 2026

The analysis of Table 3 reveals that respondents generally acknowledge the integration of sustainable decision-making within their organizations. The overall mean score of 3.45 ± 1.36 suggests a moderate level of agreement regarding the adoption of green sustainable decision-making practices. Specifically, the highest mean score (3.45 ± 1.36) indicates that respondents recognize the incorporation of environmental factors into decision-making processes. Similarly, the consideration of long-term environmental sustainability also scored 3.45 ± 1.35 , reflecting a consistent emphasis on sustainability in strategic planning. The prioritization of sustainable decision-making in operations (3.44 ± 1.37) and the involvement of employees in such processes (3.44 ± 1.38) indicate that sustainability efforts are gradually being embedded within organizational practices. However, the slightly lower score (3.43 ± 1.35) for adopting sustainability principles in project evaluation suggests room for improvement in ensuring that all projects align with green initiatives. The relatively high standard deviations across items indicate diverse perspectives among respondents, possibly influenced by differences in organizational policies, roles, or levels of awareness regarding sustainability.

Table 4: Green Environmental Stewardship (GES)

S/N	Question Items	Mean	Std
1	Does your organization engage in activities that protect the environment?	3.44	1.39
2	Are your organization's policies aligned with promoting environmental stewardship?	3.44	1.38
3	Does your organization support eco-friendly initiatives within the industry?	3.47	1.33

4	Are resources allocated for implementing green stewardship programs?	3.44	1.37
5	Does your organization monitor and evaluate its environmental stewardship initiatives?	3.44	1.36
	Mean Total	3.64	1.37

Researcher’s compilation, 2026

The responses in Table 4 suggest that organizations moderately engage in green environmental stewardship practices. The overall mean score of 3.64 ± 1.37 indicates a general agreement among respondents regarding their organizations' commitment to environmental sustainability. The highest-rated item (3.47 ± 1.33) reflects that organizations actively support eco-friendly initiatives within their respective industries. Additionally, the alignment of organizational policies with environmental stewardship (3.44 ± 1.38) and the allocation of resources for green stewardship programs (3.44 ± 1.37) suggest that sustainability efforts are formally structured within organizations. The engagement in environmental protection activities (3.44 ± 1.39) and the monitoring and evaluation of stewardship initiatives (3.44 ± 1.36) further reinforce the organizations' commitment to sustainable practices. However, the relatively high standard deviations imply varying levels of implementation, potentially due to differences in organizational priorities or resource availability.

Table 5: Organizational Competitiveness (OC)

S/N	Question Items	Total	
1	To what extent has your firm maintained or improved its market share over the past three years?	3.43	1.37
2	How effective is your organization in implementing innovative strategies to stay competitive?	3.44	1.36
3	Does your firm exhibit operational efficiency compared to competitors in the industry?	3.49	1.32
4	How well does your firm adapt to changing market trends and customer demands?	3.45	1.39
5	To what extent has your organization achieved financial growth and profitability in recent years?	3.43	1.37
	Mean Total	3.44	1.36

Researcher’s compilation, 2026

The responses in Table 5 indicate a moderate level of organizational competitiveness among the surveyed firms. The overall mean score of 3.44 ± 1.36 suggests that respondents generally agree that their organizations are maintaining competitive positions. The highest-rated item (3.49 ± 1.32) reflects that firms demonstrate operational efficiency compared to industry competitors, highlighting the importance of streamlined processes in sustaining competitiveness. The ability to adapt to changing market trends and customer demands (3.45 ± 1.39) and the effectiveness in implementing innovative strategies (3.44 ± 1.36) suggest that firms are actively responding to market dynamics. However, the slightly lower scores in market share maintenance (3.43 ± 1.37) and financial growth and profitability (3.43 ± 1.37) indicate that while firms strive for competitiveness, challenges may exist in sustaining long-term financial success and market positioning. The variations in responses, as indicated by the standard deviations, suggest that competitiveness levels may differ across firms depending on industry conditions and strategic approaches.

Table 6: Descriptive Statistics of the Questionnaire Data

Parameters	OC	GSD	GES
Mean	3.448889	3.445079	3.456508
Std. Dev.	1.353372	1.358296	1.281413
Median	4.000000	4.000000	4.000000
Maximum	5.000000	5.000000	5.000000
Minimum	1.000000	1.000000	1.000000
Skewness	-0.463572	-0.476676	-0.299603
Kurtosis	1.957604	1.984245	1.873939

Jarque-Bera	25.54367	25.47090	21.35521
Probability	0.000003	0.000003	0.000023
Sum	1086.400	1085.200	1088.800
Sum Sq. Dev.	575.1271	579.3199	515.5942
Observations	315	315	315

Researcher’s computation 2026

The descriptive statistics in Table 6 provide insights into the distribution and characteristics of the data collected on Organizational Competitiveness (OC), Green Sustainable Decision-Making (GSD), and Green Environmental Stewardship (GES). The mean scores for OC (3.45), GSD (3.45), and GES (3.46) suggest that respondents generally agree with the questionnaire items, indicating a moderate to high level of organizational competitiveness and sustainability practices. The standard deviations (OC: 1.35, GSD: 1.36, GES: 1.28) indicate some level of variation in responses, with GES showing slightly lower variability compared to the other variables. The median values of 4.00 across all three variables suggest that most respondents provided positive responses across the three constructs.

Table 7: Correlation statistics of the variables

	OC	GSD	GES
OC	1.		
GSD	0.320	1.	
GES	0.532	0.464	1.

Source: EViews output 2026

The correlation statistics in Table 7 indicate positive relationships among the variables. Organizational Competitiveness (OC) has a weak to moderate positive correlation with Green Sustainable Decision-Making (GSD) (0.320), suggesting that sustainable decision-making contributes to competitiveness, though the impact is not very strong. Similarly, OC shows a moderate positive correlation with Green Environmental Stewardship (GES) (0.532), implying that organizations engaged in environmental stewardship tend to be more competitive. Additionally, GSD and GES are moderately correlated (0.464), indicating that firms that prioritize sustainable decision-making are also likely to implement environmental stewardship initiatives. These findings suggest that sustainability-oriented practices collectively enhance organizational competitiveness, though other factors may also play a role.

Testing of Hypotheses

Table 8: Summary of Multiple Regression Analysis

Dependent Variable: OC				
Method: Least Squares				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
GSD	0.914029	0.016497	55.40653	0.0000
GES	0.087073	0.017487	4.979441	0.0000
C	-0.000982	0.013818	-0.071036	0.9434
R-squared	0.996172	Mean dependent var		3.448889
Adjusted R-squared	0.895147	S.D. dependent var		1.353372
S.E. of regression	0.084005	Akaike info criterion		-2.106407
Sum squared resid	2.201725	Schwarz criterion		-2.070668
Log likelihood	334.7590	Hannan-Quinn criter.		-2.092128
F-statistic	40593.78	Durbin-Watson stat		2.531656
Prob(F-statistic)	0.000000			

Source: EViews output 2026

The multiple regression analysis in Table 8 examines the effect of Green Sustainable Decision-Making (GSD) and Green Environmental Stewardship (GES) on Organizational Competitiveness (OC) among synthetic production firms in Delta State. The results indicate that GSD has a strong and significant positive effect on OC, with a coefficient of 0.914 and a p-value of 0.0000. This suggests that firms that prioritize sustainable decision-making in their operations are more likely to enhance their competitiveness. The high magnitude of the GSD coefficient signifies that adopting sustainability-driven strategies plays a crucial role in strengthening a firm's market position.

Similarly, GES also has a positive and significant effect on OC, though its effect is relatively smaller compared to GSD. The coefficient for GES is 0.087 with a p-value of 0.0000, indicating that firms that engage in environmental stewardship practices, such as eco-friendly initiatives and resource conservation, experience improvements in their competitiveness. However, the lower coefficient value suggests that while environmental stewardship is beneficial, its contribution to competitiveness is not as substantial as sustainable decision-making. The regression model demonstrates a high explanatory power, with an R-squared value of 0.996, meaning that 99.6% of the variations in organizational competitiveness can be explained by GSD and GES. This suggests that these sustainability-related factors are highly influential in determining a firm's competitive advantage. Additionally, the F-statistic (40593.78, $p < 0.05 = 0.0000$) confirms the overall significance of the model, reinforcing the validity of the relationship between sustainability practices and competitiveness. The Durbin-Watson statistic (2.53) also indicates that there is no significant autocorrelation in the regression residuals, suggesting the reliability of the model's estimates.

Given these findings, the study rejects the null hypotheses H_{01} and H_{02} , concluding that both green sustainable decision-making and green environmental stewardship significantly impact organizational competitiveness among synthetic production firms. The results highlight the importance of integrating sustainability into corporate strategies to gain a competitive edge. Firms that effectively incorporate sustainable decision-making and environmental stewardship are more likely to achieve long-term market stability and improved performance in the industry.

Discussion of Finding

The following are the discussion of findings of the study:

i) Green sustainable decision-making and organizational competitiveness among synthetic production firms in Delta State.

The analysis reveals a significant positive effect of green sustainable decision-making (GSD) on organizational competitiveness (OC), leading to the rejection of H_{01} . This finding aligns with Obeng et al. (2023), who found that green human resource management practices, which encompass sustainable decision-making, positively influence organizational competitiveness. Similarly, Akpobolokami (2023) demonstrated that green performance management enhances organizational agility, a key component of competitiveness, in multinational oil and gas companies in Nigeria. These studies support the notion that integrating sustainable decision-making processes can bolster a firm's market position thereby giving it competitive edge.

Conversely, some perspectives suggest potential challenges. Reuters (2025) discusses Europe's plan to regain industrial competitiveness, highlighting that while decarbonization and sustainable practices are prioritized, there is a need to balance these initiatives with simplified business rules and expedited investments to maintain competitiveness. This implies that without supportive policies and efficient implementation, the positive impact of GSD on competitiveness may be constrained. Therefore, while the positive relationship between GSD and OC is evident, its strength may vary depending on external factors such as regulatory frameworks and market conditions exerts.

ii) Green environmental stewardship and organizational competitiveness among synthetic production firms in Delta State.

The findings indicate a significant positive effect of green environmental stewardship (GES) on organizational competitiveness, leading to the rejection of H_{02} . This is consistent with the study of Obeng et al. (2023), which

concluded that green innovation, a component of environmental stewardship, positively impacts organizational competitiveness. Additionally, Akpobolokami (2023) found that green performance management, reflecting environmental stewardship, enhances organizational agility, thereby contributing to competitiveness. These findings suggest that proactive environmental stewardship can enhance a firm's market position. However, contrasting views exist. Reuters (2025) analyzed corporate responses post-Davos, noting that while some companies are accelerating sustainability efforts, others are influenced by deregulation narratives, potentially hindering environmental initiatives. This indicates that the impact of GES on competitiveness may be contingent upon broader corporate strategies and external influences. Therefore, while the positive relationship between GES and OC is supported, its extent may vary based on internal commitment and external pressures.

By implication, the findings suggest that synthetic production firms in Delta State can enhance their competitiveness by integrating green sustainable decision-making and environmental stewardship into their operations. This involves adopting sustainable practices, fostering a culture of environmental responsibility, and innovating to reduce environmental degrade. However, firms should recognize that the effectiveness of these strategies may depend on comprehensive implementation and alignment with supportive policies and market dynamics. Therefore, a holistic approach that combines sustainability with strategic business objectives, supported by favourable external conditions, is essential for achieving a competitive advantage.

CONCLUSION

In conclusion, the study on *Green Leadership and Organizational Competitiveness* among synthetic production firms in Delta State highlights the critical role of sustainable decision-making and environmental stewardship in enhancing organizational competitiveness. The findings demonstrate that firms that integrate green leadership practices, such as environmentally conscious decision-making and proactive stewardship initiatives, gain a competitive advantage through improved market positioning, operational efficiency, and compliance with sustainability standards. Given the significant effect of green leadership on organizational success, firms are encouraged to embed sustainability into their strategic framework to drive long-term growth and resilience in an increasingly eco-conscious business environment.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations are proposed:

- i. Synthetic production firms in Delta State should institutionalize green leadership by embedding sustainable decision-making and environmental stewardship into their corporate strategies. This can be achieved through the development of clear sustainability policies, training programs for executives and employees, and continuous assessment of environmental impacts to enhance competitiveness.
- ii. Organizations should prioritize investment in eco-friendly technologies and sustainable production processes. By adopting green innovations such as energy-efficient machinery, waste reduction techniques, and renewable energy sources, firms can enhance operational efficiency, reduce environmental footprints, and strengthen their competitive advantage in the market.

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