CIRCULAR ECONOMY STRATEGIES AND MSME PERFORMANCE IN NIGERIA

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ABSTRACT

The transition to a circular economy presents significant opportunities for enhancing the sustainability and competitiveness of Micro, Small, and Medium Enterprises (MSMEs) in emerging economies. This study investigates the relationship between circular economy strategies and MSME performance in Nigeria, with a focus on resource efficiency, waste reduction, and business innovation. Findings from empirical review reveal that the adoption of circular practices such as recycling, product redesign, sharing platforms, and extended producer responsibility positively influences financial outcomes, operational resilience, and environmental performance. However, barriers including limited access to finance, inadequate infrastructure, and low regulatory enforcement constrain broader implementation. The study highlights the critical role of policy support, capacity building, and institutional collaboration in scaling circular economy initiatives. Implications for practitioners and policymakers include strategies for enhancing MSME competitiveness, stimulating green jobs, and advancing national sustainable development goals. The paper contributes to the literature by providing empirical evidence on how circular economy interventions can drive inclusive economic growth within the Nigerian MSME landscape.

Keywords: circular economy,waste management,recycling,reuse,resource efficiency.

1.0 INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) are widely recognized as the backbone of Nigeria's economy, contributing significantly to employment generation, poverty reduction, and economic diversification (SMEDAN, 2021). Despite their economic importance, Nigerian MSMEs continue to face structural challenges such as inadequate access to finance, inefficient resource utilization, high operating costs, and environmental sustainability concerns. These challenges have intensified the need for alternative business models that not only improve firm performance but also promote sustainable production and consumption patterns. The circular economy has emerged as a transformative approach that seeks to decouple economic growth from resource depletion by promoting resource efficiency, waste reduction, reuse, recycling, and product life extension (Geissdoerfer et al., 2017). Unlike the traditional linear economic model of "take–make–dispose," circular economy strategies aim to retain the value of materials and products within the economic system for as long as possible (Ellen MacArthur Foundation, 2015). For MSMEs, the adoption of such strategies can enhance operational efficiency, stimulate innovation, reduce production costs, and improve overall firm performance (Rizos et al., 2016).

However, despite the potential benefits, the adoption of circular economy strategies among Nigerian MSMEs remains limited. Factors such as low awareness, weak institutional support, inadequate infrastructure, and limited technical expertise constrain widespread implementation (Kirchherr et al., 2018). Moreover, empirical studies examining the direct relationship between circular economy strategies and MSME performance in developing economies, particularly Nigeria, remain scarce. Most existing research has focused on large

firms or developed economies, leaving a significant gap in context-specific evidence (Ghisellini et al., 2016). This study seeks to address this gap by examining the effect of circular economy strategies on the performance of MSMEs in Nigeria. Specifically, it explores how circular practices influence financial, operational, and environmental performance outcomes. By providing empirical insights, the study contributes to the growing body of literature on circular economy implementation in developing economies and offers practical implications for policymakers, MSME owners, and development agencies seeking to promote sustainable and inclusive economic growth in Nigeria.

2.0 LITERATURE REVIEW

2.1 Conceptual Review

The transition from a linear to a circular economy (CE) has gained global attention as a pathway to sustainable development. The circular economy emphasizes resource efficiency through reuse, recycling, and regeneration, offering potential benefits for Micro, Small, and Medium Enterprises (MSMEs), particularly in developing economies such as Nigeria. However, despite growing scholarly interest, empirical evidence linking circular economy strategies to MSME performance in Nigeria remains limited and fragmented.
This review synthesizes existing literature to demonstrate that the absence of primary data is justified due to structural, methodological, and contextual gaps in current research.

2.1.1 Micro, Small and Medium-Sized Enterprises

Micro, Small and Medium Enterprises (MSMEs) are businesses classified according to specific thresholds such as the number of employees, asset base, or annual turnover. These enterprises are generally characterized by relatively small scale of operations, limited capital, and significant contribution to employment generation and economic development.
In the Nigerian context, the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN), in collaboration with the National Bureau of Statistics (NBS), defines Micro enterprises as Businesses with less than 10 employees and assets (excluding land and buildings) of less than ₦5 million.it also defined Small enterprises as Businesses with 10–49 employees and assets of ₦5 million to less than ₦50 million.and defined Medium enterprises as Businesses with 50–199 employees and assets of ₦50 million to less than ₦500 million.

2.1.2 Relevance of Circular Economy to MSMEs

The relevance of the circular economy to Micro, Small and Medium Enterprises (MSMEs) in Nigeria is significant, given the dominant role MSMEs play in the Nigerian economy and the country's growing environmental and resource challenges.

Firstly, the circular economy is relevant to Nigerian MSMEs because it promotes cost reduction and resource efficiency. MSMEs in Nigeria often struggle with high production costs, limited access to raw materials, and unstable supply chains. Circular practices such as reuse of materials, recycling of waste, and efficient input management enable MSMEs to reduce dependence on virgin resources and lower operational costs (OECD, 2020). According to Akinwale (2024), MSMEs that adopt circular economy practices experience improved resource efficiency and better cost management, which enhances their financial sustainability.

Secondly, the circular economy contributes to environmental sustainability and improved waste management. Nigeria faces serious challenges related to solid waste disposal, pollution, and environmental degradation. MSMEs contribute significantly to waste generation due to

their large numbers. By adopting circular practices, such as converting waste into productive inputs and reducing emissions, MSMEs can minimize their environmental footprint and support sustainable development (UNIDO, 2021). The Raw Materials Research and Development Council (RMRDC, 2022) notes that circular economy adoption by MSMEs can significantly reduce industrial waste while promoting environmental protection. Thirdly, the circular economy promotes job creation and inclusive economic growth. Circular activities such as recycling, repair, refurbishing, and up-cycling create employment opportunities across value chains. This is particularly important in Nigeria, where MSMEs are key drivers of employment and poverty reduction. Shittu (2023) argues that engaging MSMEs in the circular economy can unlock new economic opportunities and contribute to inclusive growth while addressing unemployment challenges.

Another major relevance of the circular economy to MSMEs in Nigeria is its role in innovation and business model transformation. Circular economy principles encourage MSMEs to redesign products for durability, introduce repair and maintenance services, and explore new revenue streams from waste and by-products. These innovations improve business resilience and competitiveness in a challenging economic environment (Ellen MacArthur Foundation, 2013; UNIDO, 2021).

Furthermore, the circular economy provides competitive advantage and improved market access for MSMEs. As global and regional markets increasingly demand environmentally responsible production, MSMEs that adopt circular practices can enhance their brand image and meet sustainability requirements within value chains. This improves their chances of accessing export markets, partnerships, and green financing opportunities (OECD, 2020; Guardian Nigeria, 2023).

Finally, the circular economy aligns MSMEs' activities with national and global development goals. The adoption of circular practices supports Nigeria's sustainable development agenda and contributes to the achievement of Sustainable Development Goals (SDGs), particularly SDG 8 (Decent Work and Economic Growth), SDG 9 (Industry, Innovation and Infrastructure), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action) (UNIDO, 2021).

Overall, the literature suggests that while circular economy strategies hold strong potential for improving MSME performance in Nigeria, realizing these benefits requires supportive policies, access to green finance, capacity building, and stronger institutional frameworks. Strengthening these enablers would enhance MSMEs' ability to integrate circular practices and contribute to sustainable development in Nigeria.

2.1.3 Challenges Limiting the Adoption of Circular Economy Strategies by MSMEs in Nigeria

Despite the growing relevance of the circular economy, the adoption of circular economy strategies by Micro, Small and Medium Enterprises (MSMEs) in Nigeria remains limited due to several interconnected challenges.

Many MSMEs in Nigeria have low awareness and understanding of circular economy concepts and practices. Business owners often lack the technical knowledge required to redesign products, adopt recycling technologies, or implement sustainable production processes. According to Akinwale (2024), although awareness of sustainability issues is increasing, practical understanding of how to implement circular strategies remains low

among MSMEs. One of the major barriers to circular economy adoption is inadequate access to finance. Circular strategies often require initial investments in new technologies, machinery, or processes, which many MSMEs cannot afford. High interest rates, limited access to credit, and lack of tailored green financing options further restrict MSMEs' ability to invest in circular innovations (OECD, 2020).

In addition the absence of clear and consistent government policies, incentives, and regulations discourages MSMEs from adopting circular practices. There is limited enforcement of environmental regulations and insufficient fiscal incentives such as tax reliefs or subsidies to encourage sustainable business models. UNIDO (2021) notes that policy uncertainty and weak institutional support significantly slow the transition to a circular economy in developing countries like Nigeria.

Also Poor waste management systems, unreliable electricity supply, and limited access to modern recycling and processing technologies pose serious challenges. Without functional infrastructure, MSMEs find it difficult to recover materials, manage waste efficiently, or participate in circular value chains (RMRDC, 2022). Many MSMEs operate in the informal sector and lack strong links to organized supply chains. This limits opportunities to sell recycled or refurbished products and reduces incentives to adopt circular strategies. According to OECD (2020), weak market demand for recycled and sustainable products reduces MSMEs' motivation to transition to circular business models.

Some MSME owners are reluctant to change existing business practices due to risk aversion, short-term profit orientation, and limited managerial skills. The perceived uncertainty associated with new circular models discourages adoption, especially in highly competitive and unstable markets (Akinwale, 2024). The lack of reliable data on waste streams, resource flows, and circular economy opportunities makes it difficult for MSMEs to make informed decisions. This information gap hinders planning, monitoring, and evaluation of circular economy strategies (UNIDO, 2021). A large proportion of Nigerian MSMEs operate informally, limiting their access to government support programs, financing, training, and partnerships. Informality reduces incentives to comply with environmental standards or invest in long-term sustainable practices (OECD, 2020).

2.2 Theoretical Review

The theoretical foundation of the relationship between circular economy (CE) strategies and Micro, Small and Medium-Sized Enterprises (MSMEs) performance is rooted in sustainability-oriented management and economic theories that explain how firms achieve competitive advantage while addressing environmental constraints. In Nigeria, where MSMEs dominate the business landscape, these theories provide insights into how circular practices can enhance firm performance despite structural and institutional challenges.

2.2.1 Circular Economy Theory

The Circular Economy Theory posits that economic systems should be regenerative by design, emphasizing reduced resource consumption, waste elimination, and continuous material circulation. This theory suggests that firms adopting CE strategies such as reuse, recycling, re-manufacturing, and Eco-design can achieve improved efficiency and long-term sustainability (Geissdoerfer et al., 2017). For Nigerian MSMEs, CE theory explains how value can be created from waste streams and inefficient resource use, thereby improving productivity and profitability.

Resource-Based View Theory

The Resource-Based View (RBV) provides a strong theoretical lens for linking CE strategies to MSME performance. RBV argues that firms gain competitive advantage by developing valuable, rare, inimitable, and non-substitutable resources and capabilities (Barney, 1991). Circular economy practices enable MSMEs to build unique capabilities such as resource efficiency, waste-to-value innovation, and environmentally responsible production, which can lead to superior financial and non-financial performance outcomes in Nigeria's competitive and resource-constrained environment. Closely related is the Natural Resource-Based View (NRBV), which extends RBV by emphasizing environmental capabilities as sources of competitive advantage. According to NRBV, strategies such as pollution prevention, product stewardship, and sustainable development enhance firm performance while reducing environmental impact (Hart, 1995). In the Nigerian MSME context, CE strategies align with NRBV by promoting cleaner production, efficient material use, and compliance with emerging environmental regulations.

Stakeholder Theory

The Stakeholder Theory further explains the adoption of CE strategies by MSMEs. This theory asserts that firms must address the interests of multiple stakeholders—including customers, regulators, communities, and environmental groups—to achieve sustained performance (Freeman, 1984). Nigerian MSMEs that adopt circular practices may improve stakeholder trust, brand reputation, and market acceptance, thereby positively influencing business performance.

Institutional Theory

Institutional Theory provides insight into the external pressures shaping CE adoption. The theory suggests that organizational practices are influenced by regulatory, normative, and cognitive pressures within the institutional environment (DiMaggio & Powell, 1983). In Nigeria, government policies, industry norms, and international sustainability standards increasingly pressure MSMEs to adopt circular economy strategies, which can indirectly affect performance through legitimacy and compliance benefits.

Sustainability Transition Theory

Sustainability Transition Theory (STT) explains how societies and economic systems shift from unsustainable modes of production and consumption to more sustainable ones through long-term, structural change. The theory emphasizes that transitions occur through interactions among technology, policy, markets, institutions, and social actors over time (Geels, 2002; Markard, Raven & Truffer, 2012). In the context of the circular economy (CE), STT provides a useful lens for understanding how businesses especially MSMEs can move from linear to circular models.

STT is commonly operationalized through the Multi-Level Perspective (MLP), which identifies three analytical levels: niches, regimes, and landscapes. At the niche level, innovations emerge in protected spaces where new ideas and practices can develop. In Nigeria, MSMEs often function as niche actors experimenting with circular economy strategies such as waste recycling, repair and reuse services, agro-waste valorization, and small-scale re-manufacturing. These niche innovations allow MSMEs to test circular business models with relatively low risk and adapt them to local conditions. The socio-technical regime represents dominant practices, regulations, technologies, and market structures. Nigeria's current regime is largely linear, characterized by weak waste management systems, limited recycling infrastructure, and reliance on imported raw materials. However, increasing

policy attention to environmental sustainability, extended producer responsibility, and circular economy road-maps is gradually creating pressure on the existing regime. MSMEs that align early with circular strategies can gain legitimacy, comply with emerging regulations, and improve their competitive positioning. The landscape level consists of broader external forces such as population growth, climate change, resource scarcity, and global sustainability agendas. In Nigeria, rising urbanization, youth unemployment, environmental degradation, and global commitments to the Sustainable Development Goals (SDGs) exert pressure for systemic change.

These landscape pressures create opportunities for MSMEs to adopt circular economy strategies as survival and growth mechanisms. From a performance perspective, STT explains how MSMEs' engagement in circular economy strategies can lead to improved economic, environmental, and social performance. By participating in sustainability transitions, Nigerian MSMEs can reduce production costs through efficient resource use, generate new revenue streams from waste-to-value activities, enhance resilience to resource shocks, and improve social legitimacy among consumers and regulators.

2.2.2 Linkage Between Circular Economy Strategies and MSME Performance

The conceptual linkage between circular economy (CE) strategies and the performance of Micro, Small and Medium Enterprises (MSMEs) is grounded in the idea that efficient and regenerative use of resources enhances both sustainability and business outcomes. Circular economy strategies focus on reducing waste, extending product life cycles, recycling materials, and redesigning business processes to create closed-loop systems. These strategies contrast with the traditional linear model and are increasingly viewed as drivers of firm-level performance.

Circular economy strategies serve as strategic inputs that influence MSME performance through multiple pathways. By adopting practices such as resource efficiency, reuse, recycling, re-manufacturing, and circular supply chains, MSMEs can reduce production costs, minimize material losses, and improve operational efficiency. Cost savings achieved through lower raw material consumption and waste disposal expenses directly enhance financial performance (Bocken et al., 2016).

In addition, circular economy strategies promote innovation and value creation. MSMEs can develop new products and services from waste streams, introduce Eco-designed products, or adopt service-based business models. These innovations strengthen competitive advantage, improve market positioning, and enhance customer satisfaction, thereby improving overall firm performance (Geissdoerfer et al., 2017).

From a sustainability perspective, circular practices improve environmental and social performance, which can indirectly influence economic outcomes. Improved environmental responsibility enhances firm reputation, stakeholder trust, and regulatory compliance, which are critical for MSMEs operating in sensitive and competitive markets such as Nigeria (Hart, 1995; Freeman, 1984). Conceptually, the linkage is also influenced by contextual factors such as access to finance, technological capability, managerial competence, and institutional support. These factors may mediate or moderate the relationship between CE strategies and MSME performance, strengthening or weakening the extent to which circular practices translate into tangible performance outcomes. In summary, the conceptual relationship suggests that circular economy strategies positively influence MSME performance by improving resource efficiency, fostering innovation, reducing costs, and enhancing

environmental and social legitimacy. For Nigerian MSMEs, effective adoption of circular strategies has the potential to improve resilience, competitiveness, and long-term sustainability, provided enabling institutional and policy conditions are in place.In examining the relationship between circular economy (CE) strategies and MSME performance in

Mediating Variable

Nigeria, it is important to recognize that the impact of circular practices is often indirect. Mediating variables act as mechanisms through which circular economy strategies translate into better firm outcomes. These mediators explain *how* and *why* the adoption of CE practices affects MSME performance. Firstly we have the Technological capability which refers to a firm's ability to acquire, adopt, and effectively use technologies that enable CE practices, such as recycling equipment, energy-efficient machinery, or Eco-design software. In Nigerian MSMEs, strong technological capability enhances the effective implementation of circular strategies, leading to improved operational efficiency, cost reduction, and enhanced productivity. Without adequate technological support, the benefits of CE adoption may be limited (Bocken et al., 2016).

Secondly,the Innovation capability which is the firm's ability to create new products, services, or business models from circular practices. For example, MSMEs can convert waste materials into sellable products, introduce eco-packaging, or develop service-based business models. Innovation acts as a mediator by turning CE strategies into marketable advantages, thereby improving both financial and competitive performance (Geissdoerfer et al., 2017). Thirdly, the Managerial competence which refers to the skills, knowledge, and decision-making ability of managers in planning and implementing CE strategies. Competent management ensures that circular practices align with business goals, resources are optimally allocated, and regulatory or market challenges are addressed. In Nigeria, many MSMEs are owner-managed, and managerial capacity strongly mediates how CE strategies impact firm performance (Hart, 1995).

Additionally, is the Organizational learning, this is the firm's ability to acquire knowledge, learn from experiences, and adapt processes to improve performance. CE initiatives, such as process redesign, waste reduction, or re-manufacturing, require learning and adaptation. Firms that institutionalize learning from circular initiatives enhance resource efficiency, reduce errors, and achieve better operational and financial outcomes (Geels, 2002). Lastly, is the Resource efficiency, which refers to the optimal use of materials, energy, and labor, is both an objective of CE strategies and a mediator of performance. Improved efficiency reduces production costs, minimizes waste, and increases profitability. For Nigerian MSMEs, where operational costs and resource scarcity are significant challenges, enhancing resource efficiency is a critical mechanism through which circular strategies improve performance.

Moderating Variable

A moderating variable refers to a factor that influences the strength or direction of the relationship between circular economy strategies and MSME performance. Rather than directly affecting performance, the moderator explains when, how, or under what conditions CE strategies lead to better or weaker performance outcomes. In the Nigerian MSME context, structural, institutional, and resource-related challenges make moderation effects particularly important. Several moderating variables are relevant in examining CE strategies and MSME performance in Nigeria. Access to finance is a critical moderator, as MSMEs with better access to credit or financial support are more capable of investing in circular technologies and processes, thereby strengthening the positive impact of CE strategies on performance.

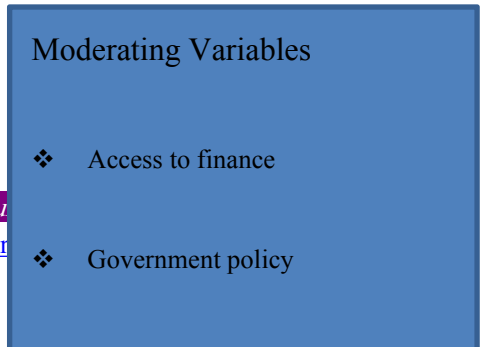
Regulatory support and government policies also moderate this relationship; supportive environmental regulations, incentives, and enforcement mechanisms can enhance the benefits derived from CE adoption, while weak regulatory frameworks may limit their effectiveness. Additionally, technological capability moderates the CE performance relationship, as firms with higher technical skills and infrastructure are better positioned to implement circular practices efficiently. Entrepreneurial and environmental awareness can further influence outcomes, as owners or managers with greater sustainability knowledge are more likely to effectively integrate CE strategies into business operations. Market-related factors, such as consumer demand for environmentally friendly products, may also strengthen the link between CE strategies and MSME performance.

In summary, the relationship between circular economy strategies and MSME performance in Nigeria is not uniform but conditional upon key moderating variables. Incorporating moderating variables into empirical analysis provides a deeper understanding of the circumstances under which circular economy strategies yield optimal performance outcomes and offers valuable insights for policymakers, practitioners, and MSME owners seeking to promote sustainable business practices.

2.3 CONCEPTUAL FRAMEWORK

A conceptual framework visually and logically maps how CE strategies influence MSME performance via key mediators and moderators.

(moderates)



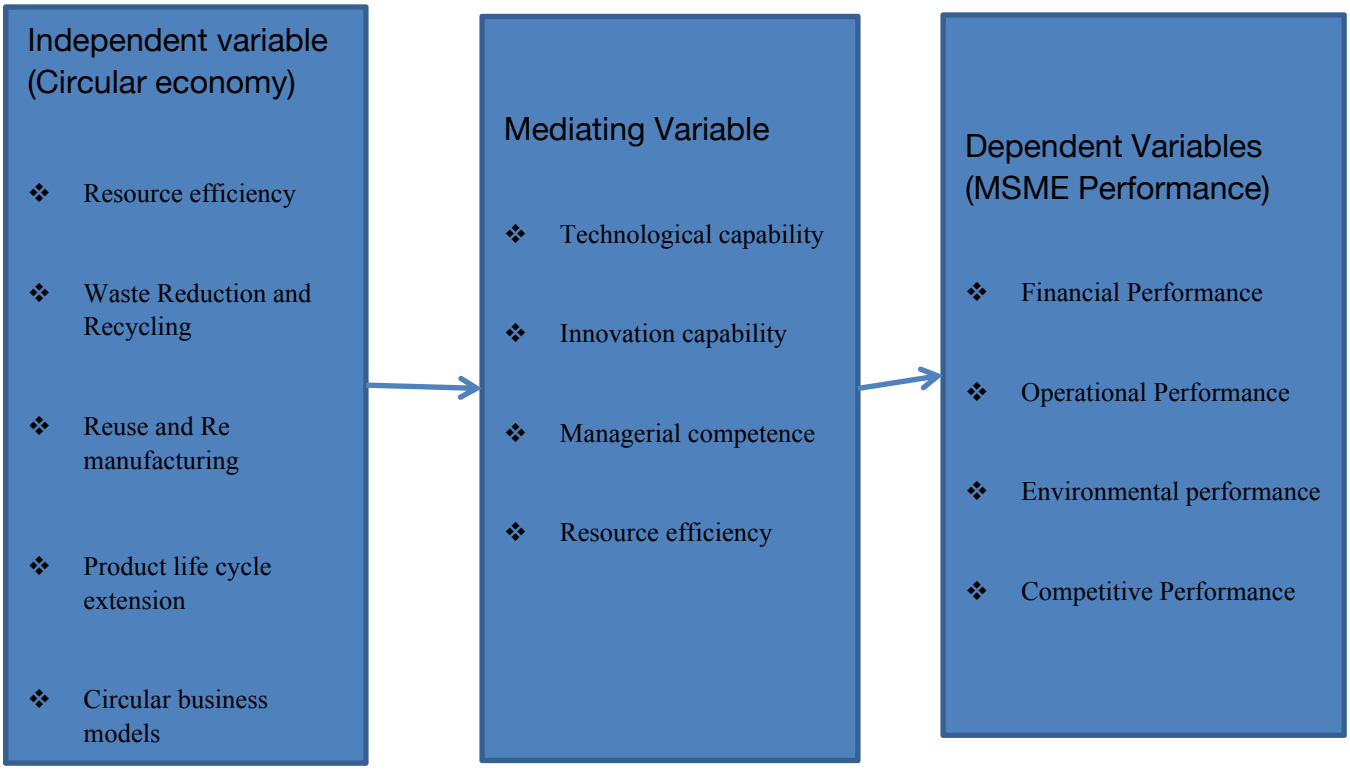


Fig 1.0 Researchers' Compilation (2026)

2.4 Empirical Review

Lawal and Amori (2023) conducted an empirical survey exploring how circular business model practices relate to sustainable development among small and medium-sized enterprises (SMEs) in Abeokuta, Ogun State, Nigeria. The study treats circular economy (CE) principles specifically *recycling*, *resource reuse*, and *waste reduction* as elements of circular business models that can drive sustainability outcomes in enterprise operations.The study surveyed 260 SME owners in Abeokuta. These entrepreneurs operated in diverse sectors including manufacturing, *food* services, agriculture, and wholesale/retail commerce. A purposive sampling technique with quotas was used to ensure representation from the four key economic sectors.The survey demonstrated that even among diverse small businesses in an emerging economy context, practices such as recycling and resource reuse are empirically measurable and significantly linked with sustainability indicators.The authors interpreted the relationships as suggesting that adopting circular business model components can enhance sustainable development outcomes giving Nigerian SMEs a potential strategic direction for integrating CE principles into everyday operations

Ismail Alhaji Sulaimon (2025) carried out a Cross-sectional survey using Partial Least Squares Structural Equation Modelling on Circular economy practices and competitiveness among Kano State manufacturers. 328 manufacturing firms in Kano State were used, representing a range of industry types within the manufacturing sector.The findings suggest that adopting circular economy practices is empirically linked to higher competitiveness in the manufacturing sector in Nigeria with reuse and recycling strategies particularly impactful. It also suggest that the strong model fit indicates that CE practices can be seen as dynamic capabilities that help firms adapt to resource scarcity, reduce costs, and improve operational flexibility. The researcher concluded that government and industry stakeholders are encouraged to support circular economy adoption through targeted policy incentives,

technology support, and capacity building to help manufacturers integrate CE processes more broadly.He also suggested that Firm managers are advised to invest in reuse and recycling infrastructure as part of corporate sustainability strategies that can simultaneously improve competitiveness.

Adesua-Lincoln (2025) conducted an empirical study on circular economy and environmental sustainability practices among Nigerian SMEs (particularly in Lagos State). Using questionnaire data from entrepreneurs, the study found that SMEs participate to some degree in practices linked to circularity such as reducing use of finite resources, recycling, and extending product longevity but many lacked a clear understanding of "circular economy" as a concept.some key barriers that hinders the adoption included high cost, low technological capacity, inadequate infrastructure, poor access to finance, and weak policy support, reducing the effectiveness of CE implementation.Differences in entrepreneurial attitudes (e.g., gender-related perceptions) influenced engagement with certain sustainability activities. The empirical implication shows that Structural and contextual constraints significantly dampen the translation of CE strategies into performance improvement, indicating the need for policy and capability development.

Akinwale & Abdulrahman (2024) investigated awareness and adoption of circular economy practices among MSMEs in Nigeria, using a Quantitative survey method with logistic regression focusing on how firms engage in CE activities within consumption and production value-chains. The study surveyed 206 MSMEs and found that Awareness of circular economy concepts among MSMEs was moderately high, but actual adoption of CE strategies was low. They also found out that Drivers of CE adoption included top management commitment, digital technology readiness, regulatory incentives, and financial resources. These findings suggest that while many MSMEs recognize the importance of CE, resource and capability constraints limit practical implementation.The study recommends increased training and inter-firm collaboration to enhance adoption of circular practices. This investigation implies that the adoption of CE strategies is a necessary precursor to performance benefits, but low implementation limits empirical evidence on direct performance outcomes.

Author (s) name	Study Location	Sample size	Research design	Circular economy(CE) practices examined	Key performance outcomes/findings
Lawal &Amori (2023)	Abeokuta, Ogun State Nigeria	260 MSME owners across manufacturing, agriculture, food services, and retail sectors	Survey research design using purposive sampling and structured questionnaire	• Recycling practices • Resource reuse • Waste reduction • Circular business models	• Strong positive and significant relationship between CE practices and sustainable development • Recycling significantly improves sustainability outcomes
Sulaimon (2025)	Kano state, Nigeria	328 Firms	Cross-sectional survey; analyzed using Partial Least Squares Structural Equation Modelling (PLS-SEM)	• Reduce (waste minimization) • Reuse practices • Recycling activities	• All CE practices have significant positive effects on firm competitiveness • CE strategies improve cost efficiency, operational performance, and market positioning
Adesua-Lincoln (2025)	Lagos state,Nigeria.	Not explicitly stated (survey of SME entrepreneurs)	Quantitative survey using structured questionnaires	• Waste reduction practices • Recycling activities • Resource efficiency • Product longevity (durability, repairability)	• SMEs show partial adoption of CE practices, particularly recycling and waste reduction • Many SMEs lack a clear understanding of circular economy concepts
Akinwale & Abdulrahman (2024)	Nigeria (multi-sector MSMEs)	206 MSMEs	Quantitative survey; analyzed using logistic regression	• Recycling and waste minimization • Resource reuse • Circular	• Moderate awareness but low adoption of CE practices among MSMEs • CE adoption

				value-chain practices	is driven by top management commitment, digital technology, financial resources, and regulatory incentives

Table 1.0 Empirical Review Summary Table

3.0 METHODOLOGY

3.1 Research Design

This study adopts a systematic literature review (SLR) approach to examine the relationship between circular economy (CE) strategies and Micro, Small, and Medium Enterprise (MSME) performance in Nigeria. The SLR method is appropriate for synthesizing fragmented evidence, identifying research gaps, and developing a structured understanding of an emerging field where primary data is limited.
The literature search was conducted across multiple academic and institutional databases to ensure broad coverage of peer-reviewed and grey literature.

Selection Criteria

To ensure the quality and relevance of selected studies, predefined inclusion and exclusion criteria were applied.
In the inclusion criteria,Studies were included if they Focused on circular economy, Examined MSMEs or SMEs ,Addressed performance outcomes, Focused on Nigeria and if they were Were published in English .
In the exclusion criteria Studies were excluded if they Focused solely on large corporations or multinational firms, Did not address performance outcomes, and if they Were purely theoretical without relevance to MSMEs

4.0 CONCLUSION

Circular economy (CE) strategies such as reducing resource use, reusing materials, recycling waste, and redesigning business processes have strong potential to improve MSME performance in Nigeria by boosting sustainability, cutting costs, and creating new business opportunities. In practice, MSMEs that engage in circular activities (e.g., recycling plastic into marketable materials or designing products for longer life) can strengthen competitive advantage, generate jobs, and contribute to environmental goals.

However, the actual impact on MSME performance remains mixed because adoption levels are still generally low and widely constrained. Many Nigerian MSMEs are aware of circular economy ideas but lack the capacity, incentives, and enabling environment to implement them fully. Key drivers of adoption include top management commitment, digital technology use, regulatory incentives, and access to finance while barriers include high upfront costs, weak infrastructure, limited policy enforcement, and regulatory inconsistency.

In summary, circular economy strategies present a promising but under leveraged pathway for enhancing MSME performance in Nigeria. Their success hinges on supportive policy,

investment in enabling infrastructure, and expanded awareness and capability among business owners.

4.1 Policy Implications and Recommendations

Based on the findings, the following recommendations are made:

1. **Adopt Incremental Circular Economy Practices:** MSMEs should begin with low-cost, high-impact strategies such as:Recycling of production waste,Reuse of materials and components and Reduction of resource consumption (energy, water, raw materials).
2. **Invest in Resource Efficiency and Cost Optimization:** MSMEs should prioritize resource efficiency practices like Waste-to-value initiatives and Energy-efficient equipment that directly improve financial performance. These practices reduce operational costs and enhance competitiveness.
3. **Strengthen Innovation and Product Design:** Firms should integrate eco-design principles by Designing durable and repairable products,Extending product life cycles and Exploring re-manufacturing opportunities which enhances market differentiation and long-term sustainability.
4. **Develop Clear Circular Economy Policies and Frameworks:**Government agencies should establish National and state-level CE policies. Also Regulatory guidelines for waste management and recycling should be established so as to provide direction and legitimacy for CE adoption.
5. **Promote Capacity Building and Awareness Campaigns:**Policymakers should collaborate with institutions such as the Small and Medium Enterprises Development Agency of Nigeria to Organize training programs and workshops, Provide technical support for MSMEs and Disseminate best practices and success stories. This will enhance knowledge diffusion and adoption rates.

4.2 Suggestions for Further Research

Despite the growing body of literature on circular economy (CE) practices and MSME sustainability in Nigeria, significant gaps remain. These gaps provide important avenues for future research to deepen understanding, improve policy relevance, and strengthen empirical evidence.

1. Longitudinal Tracking of Circular Economy Adoption: Most existing studies in Nigeria rely on cross-sectional survey designs, capturing CE adoption at a single point in time. For instance, research shows moderate awareness but low adoption among MSMEs, without tracking how adoption evolves over time. Future studies should Conduct longitudinal research to track MSMEs over multiple years and also Examine how CE adoption progresses from awareness to implementation to performance outcomes. This would provide stronger causal evidence on whether CE strategies lead to sustained improvements in MSME performance.

2. **Sector-Specific Circular Economy Interventions:** Current literature largely treats MSMEs as a homogeneous group.Additional studies could Develop sector-specific CE frameworks (e.g., agriculture vs manufacturing MSMEs) and also Investigate industry-tailored interventions, such as Agro-waste recycling in agriculture, reverse logistics in manufacturing and packaging reduction in retail .This will improve the practical applicability of CE strategies.

3. **Impact Evaluation Linking CE Strategies to MSME Performance:** A major gap in the literature is the lack of rigorous impact evaluation studies. While some studies suggest that CE practices improve efficiency and sustainability, there is limited empirical evidence directly linking CE strategies to quantifiable MSME performance indicators.for future

studies causal research designs such asExperimental or quasi-experimental methods, Structural Equation Modelling (SEM) and Panel data analysis should be used.

4. **Development of Standardized CE Measurement Frameworks:** The absence of standardized metrics for measuring CE adoption is a major limitation. Studies emphasize the need for clear indicators to assess circularity and performance outcomes .Future research should Develop context-specific CE indicators for Nigerian MSMEs so as to improve comparability and methodological rigor in future studies.

5. **Integration of Digital Technologies in CE Research:** Emerging evidence suggests that digital technologies (e.g., e-commerce, automation, tracking systems) play a critical role in enabling CE practices in Nigeria . However, this area remains underexplored. Further research should Investigate how digitalization mediates the relationship between CE strategies and performance , also research could explore digital circular business models for MSMEs

In conclusion Future research on circular economy strategies and MSME performance in Nigeria should move beyond exploratory and cross-sectional studies toward longitudinal, sector-specific, and impact-driven research designs. Addressing these gaps will Strengthen empirical evidence, Improve policy relevance, and also Enable MSMEs to fully realize the economic and environmental benefits of circular economy practices.

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