Global Journal of Business Management and Leadership | ISSN 3155-9808
Published by BIRPUB https://birpub.org/gjbml/
Imp. Factor: 5.948

Circular Business Model Innovation and Entrepreneurial Performance among Fashion SMEs in Enugu State, Nigeria

Enogwe, Grace Chisom [1], Prof. Chris C. Orga [2] & Mbah, Paulinus Chigozie Ph.D. [3]

Abstract

The study examined circular business model innovation and entrepreneurial performance among fashion SMEs in Enugu State, Nigeria. The specific objectives were to examine the relationship between Product Life Extension Innovation and revenue growth, and to evaluate the relationship between Resource Recovery Innovation and cost efficiency among fashion SMEs in Enugu State, Nigeria. The study adopted a descriptive survey research design. Primary data were collected through the administration of questionnaires. The study had a total population of 932 owners and staff of fashion SMEs. A sample size of 272 respondents was determined using Freund and Williams' statistical formula at a 5% margin of error. However, 232 respondents duly completed and returned the questionnaires. Data were presented and analyzed, while the hypotheses were tested using the Z-test. The findings revealed that Product Life Extension Innovation had a significant positive relationship with revenue growth ($Z = 8.175$, $p < 0.05$), while Resource Recovery Innovation had a significant positive relationship with cost efficiency among fashion SMEs in Enugu State, Nigeria ($Z = 8.404$, $p < 0.05$). The study concluded that Product Life Extension Innovation and Resource Recovery Innovation had significant positive relationships with revenue growth and cost efficiency, respectively, among fashion SMEs in Enugu State, Nigeria. The study recommended, among other things, that fashion SMEs in Enugu State should strengthen and consistently implement Product Life Extension Innovation practices, such as repair, redesign, and upcycling, to enhance product value and customer retention, thereby improving revenue growth.

Keywords: *Circular Business Model Innovation, Entrepreneurial Performance, Product Life Extension Innovation, Resource Recovery Innovation, Fashion SMEs.*

Cite*:* Enogwe, G. C., Orga, C. C. & Mbah, P. C. (2026). Circular Business Model Innovation and Entrepreneurial Performance among Fashion SMEs in Enugu State, Nigeria. *Global Journal of Business Management and Leadership, 4(5), 310 - 329.* https://doi.org/10.5281/zenodo.24311556

© Copyright and Licensing Notice

Authors retain full copyright over all articles published under BIRPUB. Ownership of the work does not transfer to the publisher at any stage of the publication process. Upon acceptance, authors grant BIRPUB a non-exclusive license to publish, distribute, archive, and index the article in both print and digital formats. This license allows BIRPUB to make the work publicly available while preserving the author's full intellectual property rights. Authors are free to reuse any part of their work in future publications, deposit the article in institutional or subject repositories, and share the published version on personal or professional platforms. They may also republish the article elsewhere, provided that the original appearance in BIRPUB is clearly acknowledged. BIRPUB is committed to protecting author rights and imposes no restrictions beyond appropriate citation of the initial publication.

Authors	Affiliation
1.	Department of Business Administration, Enugu state University of Science and Technology, Enugu State, Nigeria.
2.	Department of Business Administration, Enugu state University of Science and Technology, Enugu State, Nigeria.
3.	Department of Business Administration, Enugu state University of Science and Technology, Enugu State, Nigeria.

Introduction

The concept of circular business model innovation (CBMI) has evolved historically from broader sustainability and environmental management movements that emerged in the late twentieth century. Early industrial systems were largely based on a linear "take–make–dispose" model, which prioritized mass production and consumption without adequate consideration for environmental consequences. However, increasing global concerns about resource depletion and waste generation led to the emergence of the circular economy paradigm, which emphasizes reuse, recycling, and regeneration of materials (Okonkwo et al., 2026). This paradigm shift has significantly influenced business model innovation, particularly in industries such as fashion that are resource-intensive and environmentally sensitive.

Circular Business Model Innovation (CBMI) refers to the process through which firms redesign or transform their traditional business models to align with the principles of the circular economy, focusing on sustainability, resource efficiency, and long-term value creation. CBMI emphasizes closing, slowing, and narrowing resource loops through reuse, recycling, remanufacturing, and regeneration. CBMI involves the integration of circular economy principles into the core dimensions of a business model value creation, value delivery, and value capture. It enables organizations to retain the value of resources for as long as possible while minimizing waste and environmental impact (Geissdoerfer et al., 2025).

From a global perspective, circular business model innovation has gained traction as a strategic tool for enhancing both sustainability and firm performance. In the fashion industry, which is regarded as one of the most polluting sectors, firms are increasingly adopting circular practices such as product life extension, recycling, and sharing platforms to minimize waste and improve value creation (Huynh, 2021; Astuty, 2026). These innovations not only address environmental concerns but also open new revenue streams and improve competitive advantage. Recent studies highlight that integrating digital technologies such as artificial intelligence and big data further accelerates circular innovation and enhances entrepreneurial outcomes in creative industries (Astuty, 2026).

At the national level in Nigeria, the adoption of circular business models among small and medium enterprises (SMEs) is still emerging but gaining scholarly and policy attention. Nigerian SMEs play a critical role in economic development, yet they face challenges such as limited access to finance, inadequate technological infrastructure, and low awareness of circular practices. Despite these barriers, empirical evidence suggests that circular entrepreneurship significantly contributes to innovation and sustainable performance, explaining a substantial proportion of variation in SME growth outcomes (Abude & Ebigwu, 2025). Furthermore, circular business model adoption has been identified as a viable pathway for achieving sustainable development and improving resource efficiency in Nigeria's SME sector (Okonkwo et al., 2026).

From a local perspective, particularly in Enugu State, the fashion SME sector represents a vibrant segment of the creative economy with significant potential for employment generation and innovation. However, many fashion enterprises still operate using traditional linear production systems characterized by material waste, short product life cycles, and limited recycling practices. The growing awareness of sustainability and changing consumer preferences toward eco-friendly products have created opportunities for fashion entrepreneurs in Enugu to adopt circular business models. Such innovations including upcycling, clothing rental services, and sustainable sourcing can enhance entrepreneurial performance by improving profitability, market differentiation, and long-term business sustainability.

Despite these opportunities, there remains a gap in empirical understanding of how circular business model innovation directly influences entrepreneurial performance among fashion SMEs in Enugu State. The study

therefore seeks to bridge this gap by examining the relationship between circular business model practices and key performance indicators such as profitability, growth, and competitive advantage within the local context.

Statement of the Problem

Circular Business Model Innovation (CBMI) enhances entrepreneurial performance by enabling fashion SMEs to adopt sustainable practices such as recycling, reuse, upcycling, and efficient resource management. These practices are supposed to improve profitability, reduce production costs, increase competitiveness, and ensure long-term business sustainability. In developed economies, fashion SMEs that integrate circular business models have recorded improved market performance, innovation capacity, and environmental compliance.

However, in Enugu State, Nigeria, the reality appears different. Many fashion SMEs continue to operate largely on a traditional linear business model characterized by "take–make–dispose" practices. There is limited adoption of circular business model innovation due to challenges such as low awareness, inadequate technical skills, poor access to finance, and weak policy support. As a result, many fashion entrepreneurs struggle with high production costs, waste management issues, and low scalability of their businesses.

If this problem is not addressed, fashion SMEs in Enugu State may continue to experience low entrepreneurial performance, reduced competitiveness, business instability, and increased environmental degradation. This could further limit their contribution to employment generation, economic development, and sustainable industrial growth in the region. Therefore, it becomes necessary to examine how circular business model innovation influences entrepreneurial performance among fashion SMEs in Enugu State, Nigeria.

Objectives of the Study

The main objective of the study was to evaluate Circular Business model innovation and Entrepreneurial performance among Fashion SMEs in Enugu state, Nigeria. The specific objectives are to:

i. examines the relationship between Product Life Extension Innovation and revenue growth among Fashion SMEs in Enugu state, Nigeria

ii. evaluate the relationship between Resource Recovery Innovation and cost efficiency among Fashion SMEs in Enugu state, Nigeria

Research Questions

The following Research Questions guided the study

i. What is the relationship between Product Life Extension Innovation and revenue growth among Fashion SMEs in Enugu state, Nigeria.?

ii. What is the relationship between Resource Recovery Innovation and cost efficiency among Fashion SMEs in Enugu state, Nigeria?

Statement of the Hypotheses

The following Hypotheses guided the study

i. Product Life Extension Innovation has no relationship with revenue growth among Fashion SMEs in Enugu state, Nigeria

ii. Resource Recovery Innovation has no relationship with cost efficiency among Fashion SMEs in Enugu state, Nigeria

Scope of the study

Unit Scope: The study focuses on the relationship between circular business model innovation (CBMI) and entrepreneurial performance among fashion small and medium-sized enterprises (SMEs) in Enugu State, Nigeria.

Content Scope: Specifically, it covers Product Life Extension Innovation and Resource Recovery Innovation as independent variables while revenue growth and cost efficiency as dependent variables among Fashion SMEs in Enugu state, Nigeria

Geographical Scope: Geographically, the study is limited to selected fashion SMEs operating within Enugu State, including major urban and commercial areas such as Enugu metropolis and its surrounding business districts.

Review of Related Literature

Conceptual Review

Circular Business Model

A Circular Business Model (CBM) is a system of value creation that replaces the traditional linear "take–make–dispose" approach with a regenerative system focused on reducing waste, reusing materials, and extending product life cycles. CBMs are designed to retain value within the production-consumption loop by emphasizing recycling, reuse, remanufacturing, and sustainable resource management. Islam et al. (2024), circular business models enable firms to simultaneously achieve environmental sustainability and economic performance by minimizing resource input and waste output. In the fashion industry, CBMs include practices such as clothing rental, resale, repair services, and the use of eco-friendly materials. For fashion SMEs in Enugu State, adopting CBMs can help reduce production costs, improve resource efficiency, and enhance brand reputation in a market increasingly aware of sustainability issues.

Innovation

Innovation involves the introduction of new or significantly improved products, processes, marketing strategies, or organizational methods that enhance firm performance. It is a key driver of competitiveness and growth in SMEs. In the fashion sector, innovation may include new clothing designs, digital marketing strategies, improved production techniques, and sustainable material usage. Brenner and Drdla (2023) highlight that innovation plays a critical role in enabling businesses to transition toward sustainability by integrating environmental considerations into product and process development. Furthermore, innovation enhances firms' ability to respond to changing consumer preferences and market dynamics. In Enugu State, fashion SMEs that embrace innovation are more likely to achieve higher productivity, increased customer loyalty, and improved financial performance.

Circular Business Model Innovation (CBMI)

Circular Business Model Innovation (CBMI) refers to the process of redesigning or transforming existing business models to incorporate circular economy principles. It goes beyond adopting isolated sustainable practices by embedding circularity into the entire value chain of a business. CBMI includes innovations such as closed-loop supply chains, digital platforms for product reuse, and sustainable sourcing strategies. According to Brenner and Drdla (2023), CBMI enables firms to create new value propositions while reducing environmental impact. Ünal et al. (2024) further note that CBMI enhances both environmental and economic performance by improving efficiency and fostering innovation. For fashion SMEs in Enugu State, CBMI offers an opportunity to improve entrepreneurial performance by reducing waste, lowering costs, and creating new revenue streams through circular practices.

Components of Circular Business Model Innovation (CBMI)

Components of Circular Business Model Innovation (CBMI) that formed parts of the objectives

Product Life Extension Innovation

Product Life Extension Innovation involves strategies aimed at prolonging the useful life of products through activities such as repair, refurbishment, remanufacturing, reuse, and upcycling. In the fashion industry, this may include redesigning old garments, offering repair services, or creating new products from used textiles. Niinimäki et al. (2024) argue that extending product life is a critical component of circular fashion, as it reduces the demand for new raw materials and minimizes waste generation. This form of innovation not only contributes to environmental sustainability but also provides economic benefits by maximizing the value derived from existing products. For fashion SMEs in Enugu State, product life extension can serve as a competitive strategy by attracting environmentally conscious customers and reducing production costs.

Resource Recovery Innovation

Resource Recovery Innovation focuses on extracting value from waste materials through recycling, energy recovery, and material regeneration processes. In the fashion sector, this includes converting textile waste into new fabrics, accessories, or other products. According to recent studies, resource recovery innovation is essential for achieving circularity, as it transforms waste into valuable inputs for production (Journal of Cleaner Production, 2025). This approach not only reduces environmental impact but also creates additional revenue streams and improves cost efficiency. For fashion SMEs in Enugu State, adopting resource recovery practices can help address waste management challenges while enhancing profitability and sustainability.

Entrepreneurial

Entrepreneurial activities among fashion SMEs in Enugu State involve the use of skills such as creativity, innovation, leadership, and networking to establish and manage fashion businesses effectively. These entrepreneurial capabilities enable fashion entrepreneurs to identify market opportunities, design unique clothing styles, and remain competitive in a dynamic industry. Entrepreneurial competencies significantly influence SME operations in Enugu State. Leadership and networking skills positively contribute to SME growth and efficiency, Eze and Nwosu (2024). Similarly, Entrepreneurial skills enhance business output and profitability among SMEs in Enugu Metropolis, Nwobia (2024). In addition, entrepreneurial creativity and commitment have been shown to improve innovation and business sustainability, which are essential in the fashion industry (Nwabueze et al., 2025). Thus, entrepreneurial capability is a key driver for the establishment and survival of fashion SMEs in Enugu State.

Performance

Performance among fashion SMEs in Enugu State, Nigeria refers to the extent to which these businesses achieve growth, profitability, customer satisfaction, and sustainability. In the fashion sector, performance is commonly measured through sales volume, product innovation, and market competitiveness. SME performance in Enugu State is influenced by managerial practices and internal capabilities. For instance, Effective decision-making and result-oriented management significantly improve SME profitability and output, (Mbah and Nnadi, 2024). Entrepreneurial skills such as leadership and networking positively impact business performance indicators like profit and productivity, Nwobia (2024). In addition, growth strategies such as market expansion and product development enhance sales growth and competitiveness of SMEs, (Onyia et al. 2025). Thus, performance among fashion SMEs in Enugu State depends largely on effective management practices, innovation, and strategic growth efforts.

Entrepreneurial Performance

Entrepreneurial performance refers to the extent to which Small and Medium Enterprises (SMEs) achieve desired outcomes such as profitability, business growth, market share expansion, customer satisfaction, and operational efficiency. In the context of fashion SMEs, performance is often measured through sales growth, innovation capacity, brand positioning, and sustainability outcomes. Recent studies emphasize that entrepreneurial performance is increasingly driven by the ability of firms to integrate sustainability and innovation into their core operations (Zhang et al., 2024). Similarly, Ünal et al. (2024) argue that firms that adopt innovative and adaptive business models tend to outperform others in terms of financial returns and long-term competitiveness. For fashion SMEs in Enugu State, entrepreneurial performance is critical for survival in a highly competitive and informal market structure, where adaptability and innovation determine success.

Components of Entrepreneurial Performance that formed parts of the objectives of the study

Revenue Growth

Revenue growth refers to the increase in income generated from business activities over time. In the context of circular business practices, revenue growth is achieved not only through traditional sales but also through new value creation opportunities such as resale, recycling, and service-based models. Studies show that circular business model innovation creates new revenue streams by enabling firms to monetize waste and extend product usage (D'Adamo et al., 2025; Araujo et al., 2026). For fashion SMEs in Enugu State, adopting resource recovery and product life extension innovations can lead to increased revenue through diversified product offerings, such as upcycled fashion items and repair services. These practices also attract environmentally conscious consumers, thereby expanding market share and enhancing financial performance.

Cost Efficiency

Cost efficiency refers to the ability of a firm to minimize operational costs while maximizing output and profitability. Circular innovations such as resource recovery and product life extension significantly contribute to cost efficiency by reducing the need for virgin raw materials and lowering waste disposal expenses. Research indicates that circular business models help firms achieve cost savings by improving resource utilization and reducing production inefficiencies (Brenner & Drdla, 2023; Sehnem et al., 2022). In Enugu State, fashion SMEs can achieve cost efficiency by reusing fabric waste, minimizing material losses, and adopting sustainable production techniques. These practices not only reduce operational expenses but also enhance competitiveness and profitability in a resource-constrained environment.

Fashion SMEs in Enugu State, Nigeria

Fashion SMEs in Enugu State operate in a dynamic environment characterized by intense competition, limited access to finance, and increasing demand for sustainable products. Despite these challenges, there is growing awareness of the importance of sustainability and innovation in improving business performance. However, the adoption of circular business model innovation, product life extension, and resource recovery practices remains relatively low. Enhancing the integration of these concepts can significantly improve entrepreneurial performance by increasing efficiency, reducing costs, and creating new market opportunities. Therefore, understanding the relationship between circular business model innovation and entrepreneurial performance is crucial for promoting sustainable development and economic growth among fashion SMEs in Enugu State.

Conceptual Framework

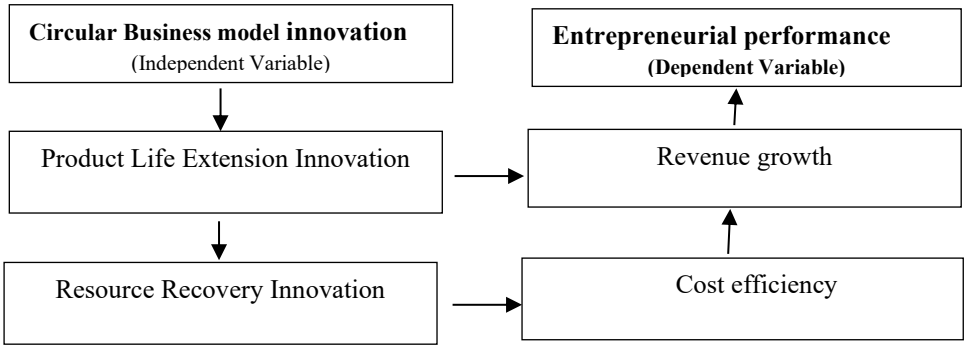

Fig.1 Conceptual diagram

The diagram above illustrates the linkage of the Circular Business model innovation and Entrepreneurial performance among Fashion SMEs in Enugu state, Nigeria. The independent Variable of the study Circular Business model innovation has Product Life Extension Innovation and Resource Recovery Innovation while dependent variables include: revenue growth and cost efficiency among Fashion SMEs in Enugu state, Nigeria

Theoretical Framework

The following theories guided the study

i. The Entrepreneurial Orientation (EO) Theory, developed from the works of Miller (1983), Covin and Slevin (1989)
ii. Schumpeter's Innovation Theory of Entrepreneurship, originally proposed by Schumpeter (1934)

Entrepreneurship plays a critical role in determining the performance of small and medium enterprises (SMEs), particularly in creative industries such as fashion. In Enugu State, Nigeria, fashion SMEs operate in a highly competitive and trend-driven environment where survival and growth depend largely on the entrepreneurial capabilities of business owners. Two relevant theories that explain the relationship between entrepreneurship and firm performance are the Entrepreneurial Orientation (EO) Theory and Schumpeter's Innovation Theory of Entrepreneurship.

The Entrepreneurial Orientation (EO) Theory, developed from the works of Miller (1983), Covin and Slevin (1989)

The Entrepreneurial Orientation (EO) Theory, developed from the works of Miller (1983), Covin and Slevin (1989), and later expanded by Lumpkin and Dess (1996), explains that firms achieve superior performance when they exhibit innovativeness, proactiveness, and risk-taking behavior. Innovativeness refers to the ability of entrepreneurs to generate and implement new ideas, products, or designs. Proactiveness involves anticipating future market demands and acting ahead of competitors, while risk-taking reflects the willingness to commit resources to uncertain business opportunities. In the context of fashion SMEs in Enugu State, this theory is highly relevant because entrepreneurs must consistently introduce new clothing styles, respond quickly to evolving fashion trends, and invest in uncertain but potentially profitable ventures such as online fashion retailing. These entrepreneurial behaviors enhance competitiveness, customer attraction, and overall business performance.

Schumpeter's Innovation Theory of Entrepreneurship, originally proposed by Schumpeter (1934)

Schumpeter's Innovation Theory of Entrepreneurship, originally proposed by Schumpeter (1934), views entrepreneurs as agents of "creative destruction" who drive economic development through innovation. According

to Schumpeter, entrepreneurs stimulate performance and growth by introducing new products, adopting new production methods, exploring new markets, and restructuring industries. In the fashion SME sector, this may include designing unique clothing lines, adopting modern tailoring technologies, or using digital platforms and social media for marketing and sales. Such innovations create competitive advantage, improve efficiency, and enhance firm performance over time.

The study is best anchored on the Entrepreneurial Orientation Theory (Miller, 1983; Covin & Slevin, 1989; Lumpkin & Dess, 1996). This is because EO theory provides a more comprehensive framework for analyzing firm behavior by integrating innovation, proactiveness, and risk-taking as combined determinants of performance. Unlike Schumpeter's theory, which focuses primarily on innovation, EO theory captures a broader range of entrepreneurial behaviors that are essential for the survival and growth of fashion SMEs in Enugu State. It therefore offers a more suitable explanatory foundation for understanding how entrepreneurial activities influence performance in the study area.

Empirical Review

Product Life Extension Innovation and Revenue Growth among Fashion SMEs

Afriyie et al. (2019) examined innovation and marketing performance of SMEs in emerging economies using a quantitative cross-sectional survey design. The study employed regression analysis to test the relationships among innovation capabilities and firm performance indicators. The results revealed that continuous product innovation, including incremental improvements and lifecycle extension strategies, positively influences revenue growth and market performance among SMEs.

Onafadeji and Adeniran (2021) conducted a study on garment and shoe enterprises in Ibadan. The research adopted a descriptive and correlational survey design, with a sample size of 657 respondents selected from fashion-related SMEs. Data were gathered through questionnaires and analyzed using regression analysis. The study established that product innovation activities, particularly redesigning and improving existing fashion products, have a significant positive effect on sales growth, confirming that product life extension strategies are key drivers of revenue expansion in fashion enterprises.

Yusr et al. (2022) examined product innovation performance in SMEs using a quantitative survey design. The study sampled 159 SME managers and applied Partial Least Squares Structural Equation Modelling (PLS-SEM) for analysis. The methodology captured innovation capability as a multidimensional construct, including product modification and improvement. The results showed that continuous product enhancement strongly predicts revenue growth, as SMEs that extend product life cycles achieve better market performance compared to those focusing only on new product introduction.

Md. et al. (2023), who explored sustainable textile innovation success factors. The study adopted a mixed-method approach involving analysis of 1,634 industry documents, 176 product case records, and 33 expert survey responses. The methodology combined qualitative benchmarking with descriptive statistical analysis. Findings indicated that product life extension practices such as recycling, repurposing, and redesigning fashion products significantly enhance market acceptance and revenue potential, especially in sustainability-driven markets.

Mulyana et al. (2024), who investigated innovation agility and business performance among fashion SMEs. The study adopted a quantitative cross-sectional survey design involving 312 fashion SME owners in Central Java, Indonesia. Data were collected using structured questionnaires and analyzed using Structural Equation Modelling (SEM). The findings revealed that product extension innovations such as redesign and modification of existing fashion items significantly enhance revenue growth by improving customer retention and repeat purchases.

Resource Recovery Innovation and Cost Efficiency

Ngene (2025) examined the effect of circular innovation practices on the performance of fashion SMEs in Nsukka, Enugu State. survey research design was adopted, and data were collected from 180 registered fashion SMEs using structured questionnaires. Data were analyzed using multiple regression analysis. The findings revealed that resource recovery practices such as fabric recycling, redesign of leftover materials, and waste reuse significantly reduce production costs and improve cost efficiency among fashion SMEs in Enugu State.

Adebimpe (2025) investigated circular economy adoption and cost efficiency among SMEs in Nigeria. descriptive survey design with a sample of 220 SMEs drawn across South-East Nigeria. Data were analyzed using Pearson correlation and regression techniques. The study found that SMEs engaging in resource recovery innovation such as recycling and repurposing of materials experience significant reductions in operational costs and improved financial sustainability.

Igweh et al. (2025) studied innovation management and operational efficiency among SMEs in Nigeria. The study adopted a cross-sectional survey design with a sample size of 250 SME operators. Data were analyzed using Ordinary least squares (OLS) regression. The study found that resource recovery systems such as waste reuse and material recycling significantly enhance cost efficiency by reducing input and disposal costs.

Agu et al. (2025) examined innovation practices and SME sustainability in Enugu State. the study used a descriptive survey research design with 200 respondents selected from registered SMEs. Analysis was carried out using Spearman rank correlation coefficient. The findings showed that fashion SMEs that adopt resource recovery innovation such as fabric reuse and redesign of waste materials record higher cost efficiency and improved profitability.

Shuaib and He (2025) explored entrepreneurial innovation and sustainability in Nigerian SMEs. the study adopted a quantitative survey design involving 210 SMEs across manufacturing and fashion-related sectors. Data were analyzed using regression analysis and structural equation modeling (SEM). The study revealed that resource recovery innovation significantly reduces production costs and enhances cost efficiency by improving material utilization and minimizing waste.

Gap in Summary of Empirical Review

A key gap in the empirical literature on circular business model innovation and entrepreneurial performance among fashion SMEs is the limited focus on localized contexts such as Enugu State, Nigeria. Most existing studies are conducted in developed or broader emerging economies, with little attention to the unique operational, cultural, and infrastructural realities of fashion SMEs in Enugu. Additionally, prior research often examines sustainability practices or innovation in isolation, without explicitly linking circular business model innovation such as reuse, recycling, and product life extension to measurable entrepreneurial performance indicators like revenue growth, profitability, and business survival. There is also a methodological gap, as few studies employ context-specific data or mixed approaches to capture the practical challenges faced by SMEs in adopting circular models. This creates the need for more empirical, location-specific research to bridge these gaps.

Methodology

Research Design

The study adopts a descriptive survey design. The design is considered appropriate because it enables the researcher to collect quantitative data from a large number of respondents and examine the extent to which circular business model innovation influences entrepreneurial performance.

Area of the study

The area of the study is Enugu State, Nigeria, which is known for its growing number of fashion SMEs, including tailoring shops, garment producers, and fashion designers. These businesses are concentrated in major commercial areas within the state, making it a suitable context for investigating innovation practices and performance outcomes.

Sources of Data

The study utilized primary and secondary sources of data**:** Primary data: Collected through structured questionnaires administered to Fashion SMEs. And Secondary data: Obtained from journals, policy documents, government reports, and previous empirical studies on Fashion SMEs.

Population of the Study

The population of the study comprises all registered and non-registered fashion SMEs operating within Enugu State. This includes entrepreneurs engaged in tailoring, clothing production, and fashion design. Available data(Internet) indicate that there are 332 registered and selected 600 non registered fashion designers in Enugu State, most of which are small-scale, owner-managed enterprises.

Table 1 Population Distribution

	Fashion SMEs.	**Total**	**%**
1.	Tailoring	230	25
2.	Clothing production	292	31
3.	Fashion design	410	44
	Total	**932**	**100**

Source: Field Survey, 2026

Table 1 These categories were selected because Fashion SMEs. affects multiple professional groups within the State and Nigeria.

Sample Size Determination

The sample size was determined using Freund and William's statistical formula as quoted by (Uzoagulu, 2011). to ensure adequate representation of the population. The population was Nine hundred and thirty-two (932)

$$n = \frac{Z^2 N(pq)}{N(e)^e + Z^2(pq)}$$

Where n = Sample Size

N = The population

p = Probability of success/proportion

q = Probability of failure/proportion

Z = Standard (error of mean) normal deviate

e = Limit of tolerable error (or level of significance)

N = 932

p = .5

q = (1 – .5) = .5

Z = 95 percent = 1.96

e = 0.05percent

$$= \frac{(1.96)^2 X\ 932\ X\ .5\ X\ 5}{932(0.05)^2 + (1.96)^2 X\ .5\ X\ 5}$$

$$\frac{3.8416\ X\ 932\ X\ .25}{2.33 + 3.8416\ X\ .25}$$

$$\frac{895.0928}{2.33 + .9604} = \frac{895.0928}{3.29} = 272.064 \quad \underline{\sim 272.}$$

Bowley's (1976) proportional allocation formula for stratified sampling was used to allocate the samples:

$$nh = \frac{n(Nh)}{N}$$

Where:

Nh = Group population from each stratum

n = overall sample size

N = the overall population

nh = sample size from each stratum, in this case each state.

Table 2 Computation/Allocation of Sample Size

	Organisations	Population	Calculation	Sample	
1.	Tailoring	230	$\frac{230\ x\ 272}{932}$ =	67	25
2.	Clothing production	292	$\frac{292\ x\ 272}{932}$ =	85	31
3.	Fashion design	410	$\frac{410\ x\ 272}{932}$ =	120	44
	Total	**932**		**272**	**100**

Source: Field Survey, 2026

Sampling Technique

To select respondents, a simple random sampling technique was employed, giving all eligible fashion SMEs an equal chance of being included in the study. Where necessary, stratified sampling was applied to ensure coverage across different locations or categories of fashion businesses.

Instrument for Data Collection.

Data for the study was collected through a structured questionnaire, which serves as the primary instrument. The questionnaire was carefully designed in line with the study objectives and divided into three main sections.

Responses were measured using a five-point Likert scale ranging from strongly agree to strongly disagree, allowing for quantitative analysis.

Validity of the Instrument

To ensure the instrument is appropriate and credible, Content and face validity were established through expert review, ensuring that the questionnaire adequately covers the constructs being measured.

Reliability of the Instrument

Reliability was tested using Cronbach's Alpha, with a threshold of 0.70 indicating acceptable internal consistency. The instrument had an overall reliability Cronbach co-efficient of 0.86 which indicated that the instrument was reliable and, therefore, considered appropriate for use.

Table 3a Cronbach Alpha Reliability Test

		N	%
Cases	Valid	10	100.0
	Excluded	0	.0
	Total	10	100.0

a. Listwise deletion based on all variables in the procedure.

Table 3b Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N0 of Items
.86	.86	20

SPSS 20.0 Output

Methods of Data Analyses

Data was collected, coded, grouped into frequencies, and arranged into tables for ease of reference. Data from the questionnaire was collected and analyzed using simple percentages and mean. To determine the nature and strength of relationship between the research variables, Z - test was used to test the hypotheses with aid of Special Package for Statistical Software (SPSS). For the 5-point likert scale questions, the scale and decision rule stated below was used in analysing the findings.

Scale

Strongly Agree (SA) - 5

Agree (A) - 4

Neutral (N) - 3

Disagree (D) - 2

Strongly Disagree (SD) - 1

Decision Rule

If Mean >3.0, the respondents agree

If mean ≤3.0, the respondents disagree

Data from the questionnaire were collected and analyzed using simple percentages, mean and standard deviation, Z- test statistic tool was used to test the hypotheses.

Z –Test

$$Z - \frac{\overline{\chi} - \mu}{\frac{\sigma}{\sqrt{n}}}$$

Where;

$\overline{\chi}$ = Population mean

μ = Sample mean

σ = Standard deviation

n = Sample size

Data Presentation and Analysis

Distribution and returned Questionnaire

The Section presents and analyzes the data collected for the study. The presentation and interpretation of data were based on the questionnaire administrated to the owners and staff of the selected Fashion SMEs in Enugu State, Nigeria.

Table 4 Distribution and Return of the Questionnaire

Fashion SMEs	Distributed	No Returned	Percent Returned	No not Returned	Percent Not Returned
1. Tailoring	67	56	21	11	4
2. Clothing production	85	74	27	11	4
3. Fashion design	120	102	38	18	7
Total	**272**	**232**	**85.0**	**40**	**15.0**

Source: Field Survey, 2026

Table 4 shows that of the 272 distributed copies of the questionnaire, two hundred and thirty-two (232) were returned and used while 40(15 percent) were not returned and were not used.

The relationship between Resource Recovery Innovation and cost efficiency among Fashion SMEs in Enugu state, Nigeria

Table 5: Responses on the relationship between Resource Recovery Innovation and cost efficiency among Fashion SMEs in Enugu state, Nigeria

		5 SA	4 A	3 N	2 DA	1 SD	∑FX	- X	SD	Decision
1	Resource recovery innovation significantly improves cost efficiency among fashion SMEs in Enugu State by enabling the reuse of materials and reducing waste in production processes.	640 128 55.2	220 55 23.7	42 14 6.0	34 14 6.0	21 21 9.1	957 232 100%	4.10	1.291	Agree
2	By recovering and recycling production resources, fashion SMEs are able to lower raw material costs and increase overall profitability.	600 120 51.7	196 49 21.1	42 14 6.0	54 27 11.6	22 22 9.5	914 232 100%	3.94	1.379	Agree
3	Efficient resource recovery practices help businesses minimize production expenses while maintaining product quality.	620 124 53.4	196 49 21.1	42 14 6.0	44 22 9.5	23 23 9.9	925 232 100%	3.99	1.369	Agree
4	Innovation in resource recovery promotes sustainable operations, which reduces long-term operational costs for fashion SMEs.	575 115 49.6	196 49 21.1	42 14 6.0	60 30 12.9	24 24 10.3	897 232 100%	3.87	1.412	Agree
5	Overall, there is a positive relationship between resource recovery innovation and cost efficiency as it enhances savings and improves financial performance.	595 119 51.3	196 49 21.1	42 14 6.0	58 29 12.5	21 21 9.1	912 232 100%	3.93	1.375	Agree
	Total Grand mean and standard deviation							**3.996**	**1. 3652**	

Source: Field Survey, 2026

Table 5, 183 respondents out of 232 representing 78.9 percent agreed that Resource recovery innovation significantly improves cost efficiency among fashion SMEs in Enugu State by enabling the reuse of materials and reducing waste in production processes with mean score of 4.10 and standard deviation of 1.291. By recovering and recycling production resources, fashion SMEs are able to lower raw material costs and increase overall profitability 169 respondents representing 72.8 percent agreed with mean score of 3.94 and standard deviation of 1.379. Efficient resource recovery practices help businesses minimize production expenses while maintaining product

quality 173 respondents representing 74.5 percent agreed with mean score of 3.99 and standard deviation of 1.369. Innovation in resource recovery promotes sustainable operations, which reduces long-term operational costs for fashion SMEs 164 respondents representing 70.7 percent agreed with mean score of 3.87 and 1.412. Overall, there is a positive relationship between resource recovery innovation and cost efficiency as it enhances savings and improves financial performance 168 respondents representing 72.4 percent agreed with a mean score of 3.93 and standard deviation 1.375.

Test of the Hypotheses

Test of the Hypotheses One: Product Life Extension Innovation has relationship with revenue growth among Fashion SMEs in Enugu state, Nigeria

One-Sample Kolmogorov-Smirnov Test

		Product life extension innovation significantly enhances revenue growth among fashion SMEs in Enugu State by allowing businesses to maximize the value of existing products through redesign and improvement.	By extending the lifespan of fashion products, SMEs reduce production costs while increasing profitability and sales over time.	Innovation in product durability and style adaptation helps fashion SMEs retain customers and attract repeat purchases, boosting revenue growth.	Improved product life extension strategies enable fashion SMEs to remain competitive in the market, leading to sustained income generation.	Overall, there is a positive relationship between product life extension innovation and revenue growth as it strengthens customer satisfaction and business performance.
N		232	232	232	232	232
Uniform Parameters[a,b]	Minimum	1	1	1	1	1
	Maximum	5	5	5	5	5
Most Extreme Differences	Absolute	.517	.504	.530	.530	.526
	Positive	.116	.095	.099	.099	.108
	Negative	-.517	-.504	-.530	-.530	-.526
Kolmogorov-Smirnov Z		7.878	7.681	8.175	8.075	8.010
Asymp. Sig. (2-tailed)		.000	.000	.000	.000	.000

a. Test distribution is Uniform.

b. Calculated from data.

Decision Rule:

Since the calculated z-value (8.175) > critical z-value (.000) at the 5% significance level, we reject the null hypothesis (H_{01}).

Decision:

Furthermore, comparing the calculated Z- value ranges from 7.681< 8.175 against the critical Z- value of .000 (2-tailed test at 95percent level of confidence) the null hypothesis were rejected. Thus the alternative hypothesis was accepted which states that **Product Life Extension Innovation had significant positive relationship with revenue growth among Fashion SMEs in Enugu state, Nigeria**

Test of the Hypotheses One: Resource Recovery Innovation has relationship with cost efficiency among Fashion SMEs in Enugu state, Nigeria

One-Sample Kolmogorov-Smirnov Test

		Resource recovery innovation significantly improves cost efficiency among fashion SMEs in Enugu State by enabling the reuse of materials and reducing waste in production processes.	By recovering and recycling production resources, fashion SMEs are able to lower raw material costs and increase overall profitability.	Efficient resource recovery practices help businesses minimize production expenses while maintaining product quality.	Innovation in resource recovery promotes sustainable operations, which reduces long-term operational costs for fashion SMEs.	Overall, there is a positive relationship between resource recovery innovation and cost efficiency as it enhances savings and improves financial performance.
N		232	232	232	232	232
Uniform Parameters[a,b]	Minimum	1	1	1	1	1
	Maximum	5	5	5	5	5
Most Extreme Differences	Absolute	.552	.517	.534	.496	.513
	Positive	.091	.095	.099	.103	.091
	Negative	-.552	-.517	-.534	-.496	-.513
Kolmogorov-Smirnov Z		8.404	7.878	8.141	7.550	7.813
Asymp. Sig. (2-tailed)		.000	.000	.000	.000	.000

a. Test distribution is Uniform.

b. Calculated from data.

Decision Rule:

Since the calculated z-value (8.404) > critical z-value (.000) at the 5% significance level, we reject the null hypothesis (H_{o1}).

Decision:
Furthermore, comparing the calculated Z- value ranges from 7.813 < 8.404 against the critical Z- value of .000 (2-tailed test at 95percent level of confidence) the null hypothesis were rejected. Thus the alternative hypothesis was accepted which states that Resource Recovery Innovation had significant positive relationship with cost efficiency among Fashion SMEs in Enugu state, Nigeria

Discussion of Findings

Relationship between Product Life Extension Innovation and revenue growth among Fashion SMEs in Enugu state, Nigeria

From the result of hypotheses one, the calculated Z- value ranges from 7.681< 8.175 against the critical Z- value of .000 which implies that Product Life Extension Innovation had significant positive relationship with revenue growth among Fashion SMEs in Enugu state, Nigeria. In support of the result in the literature review, Afriyie et al. (2019) examined innovation and marketing performance of SMEs in emerging economies using a quantitative cross-sectional survey design. The results revealed that continuous product innovation, including incremental improvements and lifecycle extension strategies, positively influences revenue growth and market performance among SMEs. Onafadeji and Adeniran (2021) conducted a study on garment and shoe enterprises in Ibadan. The study established that product innovation activities, particularly redesigning and improving existing fashion products, have a significant positive effect on sales growth, confirming that product life extension strategies are key drivers of revenue expansion in fashion enterprises.

Relationship between Resource Recovery Innovation and cost efficiency among Fashion SMEs in Enugu state, Nigeria

From the result of hypotheses Two, the calculated Z- value ranges from 7.813 < 8.404 against the critical Z- value of .000 which implies that Resource Recovery Innovation had significant positive relationship with cost efficiency among Fashion SMEs in Enugu state, Nigeria. In support of the result in the literature review**,** Ngene (2025) examined the effect of circular innovation practices on the performance of fashion SMEs in Nsukka, Enugu State. The findings revealed that resource recovery practices such as fabric recycling, redesign of leftover materials, and waste reuse significantly reduce production costs and improve cost efficiency among fashion SMEs in Enugu State. Adebimpe (2025) investigated circular economy adoption and cost efficiency among SMEs in Nigeria. Igweh et al. (2025) studied innovation management and operational efficiency among SMEs in Nigeria. The study found that resource recovery systems such as waste reuse and material recycling significantly enhance cost efficiency by reducing input and disposal costs.

Summary of Findings, Conclusion, Recommendation and contribution to Knowledge

Summary of Findings

i. Product Life Extension Innovation had significant positive relationship with revenue growth among Fashion SMEs in Enugu state, Nigeria, Z(8.175, P. <. 05). This implies that fashion SMEs in Enugu State that actively engage in Product Life Extension Innovation such as repairing, redesigning, upcycling, and reusing fashion items are more likely to experience increased revenue growth**.**

ii. Resource Recovery Innovation had significant positive relationship with cost efficiency among Fashion SMEs in Enugu state, Nigeria, Z(8.404, P. <. 05). This indicates that fashion SMEs in Enugu State that effectively implement Resource Recovery Innovation such as recycling fabric waste, reusing materials, and converting production by-products into usable inputs are able to significantly reduce operational and production **costs**, thereby improving overall cost efficiency in their businesses.

Conclusion

The study concluded that Product Life Extension Innovation and Resource Recovery Innovation had significant positive relationship with revenue growth and vamong Fashion SMEs in Enugu state, Nigeria. The circular business model innovation significantly enhances entrepreneurial performance among fashion SMEs in Enugu State, Nigeria, by improving efficiency, competitiveness, and sustainability. Firms that adopt circular practices are better positioned to achieve growth and long-term success.

Recommendations

i. Fashion SMEs in Enugu State should strengthen and consistently apply Product Life Extension Innovation (such as repair, redesign, and upcycling) as it enhances product value and customer retention, thereby improving revenue growth.

ii. There is need for Fashion SMEs in Enugu State should actively adopt Resource Recovery Innovation **s**uch as recycling fabric waste and reusing production materials, as it helps reduce raw material costs and improves overall cost efficiency**.**

Contribution to Knowledge

The study contributes to existing knowledge by providing empirical evidence on the relationship between circular business model innovation (CBMI) and entrepreneurial performance among fashion SMEs in Enugu State, Nigeria, an area that has received limited scholarly attention in the Nigerian context. Specifically, the study expands theoretical understanding by demonstrating how circular practices such as product life extension, resource recovery, and sustainable production strategies influence key performance indicators like profitability, growth, and competitiveness within small-scale fashion enterprises.

Furthermore, the study adds to literature by contextualizing CBMI within a developing economy, showing that while some circular practices significantly enhance entrepreneurial performance, others may have indirect or limited effects depending on market structure and consumer behavior. This provides a nuanced understanding of how sustainability-driven business models operate in emerging SME sectors.

Methodologically, the study also contributes by applying an integrated framework that links environmental sustainability concepts with entrepreneurial performance measurement in the fashion industry, thereby offering a model that can be adapted for future research in similar developing economy contexts.

References

Abude, P., & Ebigwu, K. I. (2025). Circular entrepreneurship and innovation adoption in Nigeria. *Journal of the Management Sciences*, *62*(2), 270–285

Adebimpe, A. (2025). Circular economy adoption and cost efficiency among SMEs in Nigeria. *Journal of Sustainable Business*, *10*(6), 1–25.

Afriyie, S., Du, J., & Musah, A. (2019). Innovation and marketing performance of SMEs in emerging economies. *Small Business Economics, 53(*4), 987–1005.

Agu, E., Eze, C., & Okafor, U. (2025). Innovation practices and SME sustainability in Enugu State. *Journal of Innovation and Management Studies, 8*(3), 112–130.

Araujo, A. R., Guerra, R. M. A., Lorenzi, D., & Carvalho, L. M. C. (2026). Circular and sustainable business model innovation: A systematic review. *Circular Economy and Sustainability*, 6, Article 82.

Arowolo, O. T., Adeyemi, K. A., & Oladipo, O. (2023). Product development strategy and performance of SMEs in Ibadan, Nigeria*. IRE Journals, 9*(1), 112–126.

Astuty, N. M. R. K. (2026). The role of digital innovation in accelerating circular economy business models in creative industries. *Business Process Management Journal*, *32*(4), 1120–1138.

Brenner, B., & Drdla, D. (2023). Business model innovation toward sustainability and circularity. *Sustainability, 15*(15), 11625.

D'Adamo, I., et al. (2025). Circular business model innovation and resource value retention. *Sustainable Production and Consumption,* 58, 188–202.

Eze, N. A., & Nwosu, U. O. (2024). Entrepreneurial competencies and their effect on SME growth in Enugu Metropolis. *International Journal of Contemporary Research in Marketing and Management Sciences, 12*(3), 27–42.

Geissdoerfer, M., et al. (2025). Circular business model innovation: Uncovering practices and patterns to retain the value of resources. *Sustainable Production and Consumption*, 58, 188–202.

Huynh, P. H. (2021). Enabling circular business models in the fashion industry: The role of digital innovation. *International Journal of Productivity and Performance Management*, 1–20.

Igweh, P., Chukwuka, N., & Onyeka, J. (2025). Innovation management and operational efficiency among SMEs in Nigeria. *Umaru Musa Yar'adua University Journal of Business Administration and Management, 12*(2), 77–95.

Islam, M. T., Iyer-Raniga, U., & Ali, A. (2024). Circular business model frameworks: A systematic review. *Highlights of Sustainability*, *3*(2), 129–162.

Journal of Cleaner Production (2025). Circular bioeconomy and resource recovery in the textile industry. *Journal of Cleaner Production*, 494, 144944.

Mbah, P. C., & Nnadi, C. S. O. (2024). Effect of result authority on the performance of small and medium scale enterprises in Enugu State. *Contemporary Journal of Social Science and Humanities*, *5*(1), 1–14.

Md., R., Hasan, M., & Rahman, S. (2023). Sustainable textile product innovation success factors: A mixed-method analysis. *Journal of Cleaner Production*, 451, 142042.

Mesogboriwon, A. O. (2024). Sustainability-driven product innovation for circular economy. *CINEFORUM Journal*, *5*(2), 45–60.

Mulyana, M., Nurhayati, T., & Putri, E. R. R. (2024). Value creation agility on business performance: An empirical study in retail fashion SMEs. *Business Perspectives and Research*, *12*(1), 45–62.

Ngene, I. (2025). Circular innovation practices and performance of fashion SMEs in Nsukka, Enugu State. *LLBSUK International Journal of Multidiscipline*, *10*(1), 45–62.

Niinimäki, K., et al. (2024). Product life extension strategies in circular fashion. *Sustainable Production and Consumption, 48, 143–156.*

Nwabueze, O. C., Ile, N. M., & Ikechukwu, J. I. (2025). Entrepreneurial passion and performance of small and medium enterprises in Enugu State. *Innovative Journal of Entrepreneurship and Business*,13(1), 47–70.

Nwobia, C. E. (2024). Effect of entrepreneurial skills on the performance of small and medium enterprises in Enugu Metropolis. *International Journal of Economics and Business Management, 10(6), 61–77.*

Nwobia, C. E. (2024). Effect of entrepreneurial skills on the performance of small and medium enterprises in Enugu Metropolis. *International Journal of Economics and Business Management, 10*(6), 61–77.

OECD (2024). Business models for the circular economy. *OECD Publishing Reports*, Issue 2, 33–47.

Okonkwo, O., Orji, O., & Iheanacho, E. (2026). SMEs and circular economy business models' adoption for sustainable development in Nigeria: A conceptual review. *International Journal of Latest Technology in Engineering, Management & Applied Science*, *12*(9), 94–99.

Onafadeji, A. O., & Adeniran, A. O. (2021). Product innovation and sales growth in garment enterprises in Nigeria. *International Journal of Industrial Economics, 8*(2), 55–70.

Onyia, N. C., Ile, N. M., & Onyema, C. N. (2025). Growth strategy adoption and performance of small and medium enterprises in Enugu State, Nigeria. *Research Journal of Accounting and Entrepreneurship*, *7*(2), 85–102.

Reim, W., Tabares, S., & Parida, V. (2025). SMEs and circular economy strategies. *Journal of Small Business Management*, *38*(2), 210–225.

Sehnem, S., et al. (2022). Circular business models and sustainability strategies. *Frontiers in Sustainability, 3, 897974.*

Shuaib, A., & He, Y. (2025). Entrepreneurial innovation and firm sustainability in Nigeria. *Annals of Management and Organization Research*, *6*(4), 405–418.

Todeschini, B. V., et al. (2021). Innovative and sustainable business models in the fashion industry. *Business Horizons*, *64*(1), 1–12.

Ünal, E., Urbinati, A., & Chiaroni, D. (2024). Circular business model innovation and firm performance. *Journal of Business Research, 175, 114449*.

Yusr, M. M., Othman, A. R., & Rahman, N. A. (2022). Determinants of SMEs' product innovation performance. *Journal of Innovation & Knowledge*, *7*(3), 100197.

Zhang, Y., et al. (2024). Innovation capability and SME performance. *Journal of Small Business Management, 62*(1), 55–72.