



Strengthening Entrepreneurial Ecosystems in North-Central Nigeria: A Pathway to Scaling SMES Amid Economic Volatility

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ABSTRACT

Small and Medium Enterprises (SMEs) play a critical role in employment generation, innovation, and economic development in Nigeria. However, persistent economic volatility characterized by inflation, exchange rate instability, infrastructural deficits, and policy uncertainties has constrained the growth and sustainability of many SMEs. This study examines the role of entrepreneurial ecosystems in strengthening SME resilience and scalability in North-Central Nigeria, with particular focus on Kogi State. Anchored on Isenberg's Entrepreneurial Ecosystem Theory, the study adopts a mixed-methods research design, combining quantitative and qualitative approaches. Data were collected from 142 SME owners and managers across manufacturing, agro-processing, and digital service sectors, as well as 27 key ecosystem actors comprising incubator managers, hub coordinators, and policymakers. Quantitative data were analyzed using descriptive statistics and regression analysis, while qualitative data were subjected to thematic analysis. The findings reveal that SMEs embedded within entrepreneurial ecosystems significantly outperform isolated firms, recording average revenue growth of 38.5% compared to 20.1% among non-ecosystem SMEs, and survival rates of 87.2% versus 64.5% during economic shocks. Access to finance emerged as the most influential ecosystem factor ($\beta = 0.42$; mean = 3.92), followed by market linkages and digital support systems. Conversely, weak institutional coordination, infrastructural deficits, and fragmented policy implementation were identified as major constraints to ecosystem effectiveness. The study concludes that functional entrepreneurial ecosystems enhance SME resilience, innovation, and scalability by providing access to resources, networks, and institutional support. It recommends stronger ecosystem coordination, improved access to finance, digital capacity development, and targeted infrastructure investment. The study contributes to the growing literature on entrepreneurial ecosystems in emerging economies and provides practical insights for policymakers, development partners, and SME support institutions.



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Introduction

Small and Medium Enterprises (SMEs) play a significant role in economic development through employment generation, innovation promotion, poverty reduction, and industrial growth. In developing economies such as Nigeria, SMEs contribute substantially to economic diversification and grassroots development. However, despite their strategic importance, many SMEs in Nigeria continue to face severe operational and growth challenges arising from infrastructural deficiencies, weak institutional support, policy inconsistency, poor access to finance, and economic instability. These challenges have become more pronounced in recent years due to inflationary pressures, exchange rate fluctuations, rising production costs, and declining purchasing power among consumers (Wahab, Akintade, & Abdulmajeed, 2026).

The entrepreneurial ecosystem concept has increasingly gained scholarly attention as a framework for understanding how interconnected institutions, actors, policies, markets, and support systems collectively influence entrepreneurial success and SME sustainability. Entrepreneurial ecosystems consist of networks involving government agencies, universities, financial institutions, business incubators, investors, innovation hubs, and private sector actors that collaboratively support business growth and innovation. Studies have shown that strong entrepreneurial ecosystems improve access to opportunities, enhance innovation capabilities, facilitate market expansion, and strengthen enterprise resilience during economic uncertainty (Opute, Kalu, Adeola, & Iwu, 2021).

In Nigeria, the entrepreneurial ecosystem remains largely underdeveloped and fragmented. Institutional voids, regulatory bottlenecks, limited technological infrastructure, inadequate financing mechanisms, and weak policy coordination continue to constrain entrepreneurial activities and SME performance. Although entrepreneurship programmes and interventions have increased across different states, many initiatives operate independently without proper integration or sustainability mechanisms. Consequently, several SMEs struggle to transition from survival-oriented ventures into scalable and competitive enterprises (Wahab et al., 2026).

The situation is particularly challenging in North-Central Nigeria, where economic volatility and infrastructural limitations significantly affect business operations. In states such as Kogi, SMEs operating within manufacturing, agro-processing, retail, and digital services sectors face persistent obstacles including poor

electricity supply, weak transportation networks, limited digital infrastructure, inadequate access to skilled manpower, and insufficient business support systems. Research on entrepreneurial ecosystems in North-Central Nigeria indicates that although entrepreneurial potential exists within the region, ecosystem structures remain weak and poorly coordinated, thereby limiting sustainable enterprise development (Abah & Abah, 2023).

Furthermore, the economic shocks experienced between 2023 and 2025 exposed the vulnerability of isolated SMEs lacking ecosystem-based support structures. Many businesses experienced declining revenues, increased operational costs, reduced access to working capital, and weakened customer demand. While some ecosystem-supported firms demonstrated resilience through collaboration, innovation, and institutional support, numerous isolated SMEs struggled to survive the economic downturn. This suggests that the sustainability and scalability of SMEs may depend significantly on the strength and coordination of surrounding entrepreneurial ecosystems (Zijlstra, Costa, & Ribeiro, 2023).

Despite growing global literature on entrepreneurial ecosystems, limited empirical studies have specifically examined the relationship between ecosystem development and SME resilience within North-Central Nigeria. Existing Nigerian studies largely focus on major innovation clusters such as Lagos and Abuja, with inadequate attention given to emerging entrepreneurial regions such as Kogi State. Additionally, there remains insufficient research on how localized ecosystem coordination can support SMEs during periods of economic volatility (Ajah & Ononiwu, 2021). It is against this backdrop that this study investigates the role of entrepreneurial ecosystems in strengthening SME resilience and scalability in North-Central Nigeria, with particular focus on Kogi State. The study seeks to examine the core ecosystem pillars influencing SME performance, identify prevailing gaps within the regional entrepreneurial environment, and propose sustainable strategies for coordinated ecosystem development capable of supporting long-term enterprise growth amid economic uncertainty.

Conceptual Clarification

Entrepreneurial Ecosystem

An entrepreneurial ecosystem refers to the combination of institutions, individuals, resources, and environmental conditions that collectively influence entrepreneurial activities within a particular geographical area. It involves the interaction between entrepreneurs, government

agencies, financial institutions, universities, markets, business development services, and social networks that support innovation and enterprise growth. According to Isenberg (2011), entrepreneurial ecosystems consist of interconnected elements that create conducive conditions for entrepreneurship, innovation, and business expansion. The ecosystem approach emphasizes collaboration, knowledge sharing, and institutional support as drivers of sustainable entrepreneurial development.

Additionally, Mason and Brown (2014) explain that entrepreneurial ecosystems provide the social, financial, cultural, and policy foundations necessary for business creation and scaling. In emerging economies such as Nigeria, the effectiveness of entrepreneurial ecosystems significantly determines the survival and competitiveness of SMEs amid economic instability.

Small and Medium Enterprises (SMEs)

Small and Medium Enterprises (SMEs) are businesses operating with relatively low capital investment, small workforce capacity, and limited market reach compared to large corporations. SMEs contribute significantly to employment generation, industrialization, innovation, and poverty reduction in developing economies. The Organisation for Economic Co-operation and Development (OECD, 2017) describes SMEs as important engines of economic growth due to their flexibility and capacity to stimulate local economic activities.

In Nigeria, SMEs constitute a major part of the private sector and contribute substantially to Gross Domestic Product (GDP). However, many SMEs face challenges including inadequate infrastructure, poor managerial capacity, limited financing opportunities, and unstable policy environments, which hinder sustainable growth and long-term survival (Aremu & Adeyemi, 2011).

Economic Volatility

Economic volatility refers to rapid and unpredictable changes in economic conditions capable of affecting business performance and national economic stability. Such fluctuations may occur in inflation rates, exchange rates, interest rates, commodity prices, and government fiscal policies. Economic volatility creates uncertainty within the operating environment and increases business risks, especially for SMEs with limited financial resilience. Bloom (2014) argues that economic uncertainty negatively affects investment decisions, productivity, and business expansion. In Nigeria, persistent inflation, currency depreciation, rising energy costs, and inconsistent economic policies have intensified volatility,

thereby exposing SMEs to operational and financial vulnerabilities.

SME Resilience

SME resilience refers to the ability of small and medium enterprises to survive, adapt, and recover from adverse economic conditions, disruptions, or external shocks while maintaining operational continuity. Resilient SMEs often possess adaptive strategies, innovative capabilities, and strong support networks that enable them to navigate difficult business environments successfully.

According to Ducheck (2020), organizational resilience involves the capacity to anticipate, cope with, and adapt to changing environmental conditions. Entrepreneurial ecosystems enhance SME resilience by providing access to financial support, mentorship, market opportunities, and institutional collaboration necessary for business continuity and recovery during economic crises.

Ecosystem Development

Ecosystem development involves the deliberate strengthening of institutional structures, collaborative networks, entrepreneurial culture, policies, and support mechanisms that facilitate enterprise growth and innovation. It focuses on building sustainable relationships among ecosystem actors to improve entrepreneurial outcomes and economic competitiveness. Roundy, Brockman, and Bradshaw (2017) state that ecosystem development enhances entrepreneurial productivity by improving coordination among stakeholders and creating environments conducive for innovation and business growth. In emerging economies, ecosystem development is particularly important in addressing institutional gaps and supporting SMEs operating within volatile economic conditions.

Theoretical Framework

This study is anchored on the Entrepreneurial Ecosystem Theory as propounded by Daniel Isenberg (2010; 2011). The theory emphasizes that entrepreneurship does not thrive in isolation but rather within a system of interconnected actors, institutions, policies, markets, and cultural factors that collectively influence entrepreneurial success and business sustainability. The theory identifies major ecosystem domains including finance, policy, culture, human capital, markets, and support institutions which interact to create an enabling environment for enterprise growth. The central assumption of the Entrepreneurial Ecosystem Theory is that the success, resilience, and scalability of businesses depend largely on the quality of interactions among ecosystem actors rather than solely on the efforts of individual entrepreneurs.

The theory assumes that when governments, financial institutions, universities, innovation hubs, private investors, and business networks function collaboratively, entrepreneurial activities become more sustainable and productive (Isenberg, 2011). It further assumes that localized support systems and institutional coordination improve innovation, knowledge transfer, access to finance, and market expansion opportunities for SMEs.

The theory has been widely applied in entrepreneurship and SME development studies because it provides a holistic understanding of how entrepreneurial environments influence business performance. However, critics argue that the theory is sometimes overly broad and difficult to operationalize because entrepreneurial ecosystems differ across regions and economic contexts. Stam and Van de Ven (2021) contend that the theory lacks universally accepted measurement indicators and may not sufficiently account for institutional weaknesses common in developing economies. Additionally, the theory has been criticized for placing strong emphasis on collaboration and innovation while underestimating the impact of political instability, corruption, and infrastructural deficits that often constrain entrepreneurship in emerging economies.

Despite these criticisms, the Entrepreneurial Ecosystem Theory remains relevant to this study because it explains how coordinated institutional support can strengthen SME resilience and scalability amid economic volatility. The theory aligns with the study's objective of examining how ecosystem pillars such as access to finance, policy coordination, market linkages, human capital development, and infrastructural support influence SME performance in North-Central Nigeria, particularly in Kogi State. The theory therefore provides an appropriate framework for understanding the relationship between ecosystem development and sustainable SME growth within volatile economic environments.

3. Methodology

This study adopted a mixed-methods research design combining quantitative and qualitative approaches to examine the role of entrepreneurial ecosystems in strengthening SME resilience and scalability in North-Central Nigeria. The mixed-methods approach was considered appropriate because it enabled the study to obtain both numerical data on SME performance and qualitative insights into ecosystem coordination, institutional support, and entrepreneurial experiences. According to Creswell and Plano Clark (2018), mixed-methods research enhances the depth and validity of

findings by integrating statistical analysis with contextual interpretation. The study area covered North-Central Nigeria with particular focus on Kogi State due to its growing entrepreneurial activities in agro-processing, manufacturing, retail, and digital services despite prevailing economic volatility. The target population consisted of registered SMEs, entrepreneurship hubs, incubators, financial support institutions, and relevant policy actors operating within the state. A multi-stage sampling technique was adopted for the study. Purposive sampling was used to select SMEs operating within sectors closely connected to entrepreneurial ecosystem activities, while stratified sampling ensured representation across manufacturing, agro-processing, and digital service sectors. In total, 142 SME owners and managers were surveyed, alongside interviews conducted with 18 entrepreneurship training centres and 9 policymakers at state and local government levels.

Primary data were collected through structured questionnaires and semi-structured interviews. The questionnaire focused on key variables such as access to finance, market opportunities, policy support, infrastructure availability, human capital development, and SME resilience indicators. The interviews provided deeper understanding of institutional coordination, ecosystem challenges, and support mechanisms influencing SME sustainability.

The validity of the research instrument was ensured through expert review and content validation by scholars in entrepreneurship and business management. Reliability was tested using Cronbach's Alpha to determine internal consistency of the questionnaire items. According to Tavakol and Dennick (2011), Cronbach's Alpha values above 0.70 indicate acceptable reliability for social science research instruments. Quantitative data obtained from the questionnaires were analyzed using descriptive statistics such as percentages, frequencies, means, and regression analysis with the aid of Statistical Package for Social Sciences (SPSS). Qualitative data from interviews were analyzed thematically to identify recurring patterns, institutional relationships, and ecosystem challenges affecting SME growth and resilience. Ethical considerations were strictly observed throughout the study. Respondents participated voluntarily, confidentiality was maintained, and informed consent was obtained before data collection commenced.

4.0 Data Analysis and Interpretation of Results

4.1 Quantitative Analysis

Table 1. Demographic Characteristics of Respondents (SMEs)

Variable	Category	Frequency (n=142)	Percentage (%)
Gender	Male	89	62.7
	Female	53	37.3
Age	18–25	21	14.8
	26–35	58	40.8
	36–45	41	28.9
	46 and above	22	15.5
Sector	Manufacturing	46	32.4
	Agro-processing	52	36.6
	Digital services	44	31.0

Source: SPSS Data (2026)

Interpretation

The data shows a higher representation of male SME operators (62.7%), indicating gender imbalance in entrepreneurial participation. Most respondents fall within the active working-age group (26–45 years), which suggests that entrepreneurship in the region is youth-

driven and growth-oriented. Sectoral distribution is relatively balanced, allowing for comparative ecosystem analysis across industries.

Table 2. Impact of Entrepreneurial Ecosystem on SME Performance

Ecosystem Factor	Mean Score	Standard Deviation	Interpretation
Access to finance	3.92	0.81	High influence
Market linkages	3.85	0.76	High influence
Human capital development	3.74	0.88	Moderate–High influence
Policy environment	3.41	0.91	Moderate influence
Infrastructure support	3.28	0.95	Moderate influence
Digital ecosystem support	3.67	0.84	High influence

Source: SPSS Data (2026)

Interpretation

Findings indicate that access to finance and market linkages are the strongest ecosystem drivers of SME performance. Infrastructure and policy environment

scored relatively lower, confirming persistent structural challenges in North-Central Nigeria. Digital ecosystem support is emerging as a significant enabler of SME growth.

Table 3. SME Performance under Ecosystem Exposure

Category	Average Revenue Growth (%)	Survival Rate During Shock Period (%)
Ecosystem-embedded SMEs	38.5	87.2
Isolated SMEs	20.1	64.5

Source: SPSS Data (2026)

Interpretation

SMEs integrated into entrepreneurial ecosystems performed significantly better, recording almost double

the revenue growth compared to isolated SMEs. Survival rates during economic shocks also show a strong resilience advantage for ecosystem-connected firms.

Table 4. Regression Summary (Ecosystem Factors vs SME Resilience)

Variable	Beta (β)	t-value	Significance (p-value)
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Access to finance	0.42	5.81	0.000
Market linkages	0.38	4.92	0.001
Infrastructure	0.21	2.45	0.015
Policy environment	0.19	2.11	0.028

Source: SPSS Data (2026)

Interpretation

The regression results show that all ecosystem variables significantly influence SME resilience ($p < 0.05$). Access to finance has the strongest predictive power, followed by

market linkages, confirming their central role in SME sustainability.

4.2 Qualitative Analysis (Thematic Presentation of Findings)

Table 4. 2: Thematic Analysis of Qualitative Responses (With Respondent Distribution)

Theme	No. of Respondents (n=27)	Key Findings	Representative Evidence (Verbatim Quotes)	Interpretation
Weak Institutional Coordination	7	Fragmented ecosystem actors with limited collaboration among government, hubs, universities, and private sector	“Everyone is working separately; there is no unified system connecting SMEs to support structures.” (Hub Manager)	Lack of coordination weakens ecosystem efficiency and SME support delivery
Limited Access to Finance	6	SMEs face difficulty accessing affordable credit despite existing interventions	“Many SMEs collapse not because they lack ideas but because they cannot access affordable finance.” (Policy Actor)	Finance remains the most critical barrier to SME survival and scaling
Infrastructure Deficit	5	Poor electricity supply, transport systems, and digital infrastructure	“Even when SMEs are ready to grow, infrastructure slows everything down.” (Incubator Director)	Structural deficiencies significantly reduce productivity and competitiveness
Emerging Digital Adoption	4	Increasing use of digital tools improves resilience and market access	“Businesses that adopted digital platforms survived the inflation shock better than others.” (Tech Hub Coordinator)	Digital adoption enhances adaptability and survival during economic shocks
Importance of Collaboration	5	Ecosystem actors collaborating lead to better SME outcomes	“Where we see collaboration, SMEs scale faster and survive longer.” (University Entrepreneurship Lead)	Collaboration is a key enabler of SME scalability and sustainability

Source: SPSS Data (2026)

4.2 Interpretation

The qualitative findings from 27 key informants (Entrepreneurship Centres, incubators, policymakers, and ecosystem actors) reveal that SME performance in North-Central Nigeria is strongly shaped by institutional coordination, financial access, infrastructure quality, and digital adoption. The distribution of responses shows that institutional fragmentation (7 respondents) and finance constraints (6 respondents) are the most frequently cited challenges, confirming that structural ecosystem

weaknesses remain dominant. However, emerging themes such as digital transformation and collaboration (9 respondents combined) indicate growing ecosystem adaptation and resilience potential among SMEs.

Discussion of Findings

This section examined the findings of the study in relation to Isenberg’s Entrepreneurial Ecosystem Theory (2010; 2011) and related literature, focusing on SME resilience and scalability in North-Central Nigeria. The findings strongly confirm that SMEs embedded within entrepreneurial ecosystems perform significantly better

than isolated firms. Specifically, ecosystem-connected SMEs recorded higher revenue growth (38.5%) compared to isolated SMEs (20.1%), and also demonstrated stronger survival rates during economic shocks (87.2% vs 64.5%). This supports Isenberg's view that entrepreneurship thrives through interconnected actors rather than isolated effort.

Access to finance emerged as the most influential ecosystem factor, with a mean score of 3.92 and $\beta = 0.42$, making it the strongest predictor of SME performance. However, findings show that financial constraints in Kogi State extend beyond availability to include affordability, accessibility, and trust issues within the financial system. Institutional coordination was found to be weak, with 7 out of 27 qualitative respondents highlighting fragmentation among ecosystem actors such as government agencies, universities, and business hubs. This indicates that, contrary to Isenberg's assumption of naturally functioning ecosystems, coordination in the study area is weak and requires deliberate governance and policy alignment.

Infrastructure was identified as a persistent constraint, with a mean score of 3.28 and $\beta = 0.21$. Poor electricity, transport, and digital infrastructure limit ecosystem effectiveness, suggesting that in developing contexts, infrastructure acts as a foundational requirement before ecosystems can function effectively. Digital ecosystem support showed growing importance, with a mean score of 3.67, as SMEs using digital tools demonstrated better resilience during inflationary shocks. This introduces a modern extension to ecosystem theory, where digital platforms serve as critical enablers of market access and survival. Collaboration among ecosystem actors was also identified as a key driver of SME success, with evidence showing that SMEs connected to universities, incubators, and private sector actors exhibited stronger growth and innovation outcomes. However, such collaboration remains limited and unstructured in the study area. Finally, the study confirmed that SMEs embedded in ecosystems are significantly more resilient during economic volatility, particularly between 2023 and 2025, due to improved access to finance, networks, and information. This supports Duchek's (2020) resilience theory and further strengthens the applicability of Isenberg's framework in explaining SME survival in uncertain economic environments. Overall, while the findings strongly support Entrepreneurial Ecosystem Theory, they also reveal important contextual limitations in North-Central Nigeria, particularly in infrastructure, and institutional coordination.

Conclusion

This study examined the role of entrepreneurial ecosystems in strengthening SME resilience and scalability in North-Central Nigeria, with particular reference to Kogi State, using Isenberg's Entrepreneurial Ecosystem Theory (2010; 2011) as the guiding framework. The findings demonstrate that SMEs embedded within functional ecosystems significantly outperform isolated firms in terms of growth and survival. Empirically, ecosystem-connected SMEs recorded higher revenue growth (38.5%) compared to isolated SMEs (20.1%), and also demonstrated stronger resilience during economic

shocks with survival rates of 87.2% versus 64.5%. This confirms that entrepreneurship performance is strongly influenced by the quality of ecosystem support structures rather than individual firm capacity alone. The study further established that access to finance is the most critical ecosystem factor influencing SME performance (mean = 3.92; $\beta = 0.42$), followed by market linkages and digital support systems. However, weak institutional coordination, infrastructural deficits (mean = 3.28; $\beta = 0.21$), and fragmented policy implementation significantly limit ecosystem effectiveness in the study area. Qualitative findings reinforced these results, with 7 out of 27 respondents highlighting poor institutional coordination and 6 respondents identifying finance as a major constraint. Overall, while the entrepreneurial ecosystem model is highly relevant to SME development in North-Central Nigeria, its effectiveness is constrained by structural and governance challenges. Nevertheless, the study confirms that strengthening ecosystem integration is key to improving SME resilience and scalability in volatile economic environments.

6.2 Recommendations

Based on the findings, the following recommendations are made:

Strengthening Access to Finance: Government and financial institutions should establish accessible, low-interest, and SME-friendly financing schemes. This should include matching grants, credit guarantee schemes, and simplified loan procedures to reduce financial exclusion. Priority should be given to ecosystem-based financing models that connect SMEs with verified funding channels.

Improving Institutional Coordination: A centralized SME Ecosystem Coordination Platform should be created in Kogi State to align government agencies, universities, business hubs, and private sector actors. This will reduce fragmentation and ensure that SME support programmes are integrated, monitored, and impact-driven.

Infrastructure Development: There is a need for deliberate investment in electricity, transportation, and digital infrastructure. Reliable infrastructure is essential for ecosystem functionality and SME productivity. Public-private partnerships (PPPs) should be encouraged to accelerate infrastructure development in SME clusters.

Strengthening Market Linkages: Government and development partners should support cluster-based SME development models that connect producers to larger markets. Trade fairs, export facilitation programmes, and digital marketplaces should be expanded to improve SME market access.

Promoting Digital Ecosystem Adoption: SMEs should be supported to adopt digital tools and platforms for marketing, payments, and operations. Training programmes on digital literacy and e-commerce should be institutionalized through universities, hubs, and entrepreneurship centres.

Enhancing Entrepreneurial Education and Capacity Building: Universities and technical institutions should strengthen entrepreneurship education, incubation programmes, and industry collaboration to build human capital capable of driving innovation and business scalability.

Policy Consistency and SME-Friendly Regulation: Government should ensure stable and predictable SME policies that reduce regulatory uncertainty. Policies should be developed in consultation with ecosystem stakeholders to ensure relevance and sustainability.

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