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Journal of Small Business and Enterprise Development

Exploring transformational entrepreneurship in an emerging economy: the role of entrepreneurial ecosystem and small business skills

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Received 5 August 2025
Revised 2 December 2025
16 April 2026
26 May 2026
Accepted 2 July 2026

Abstract

Purpose – This research aims to investigate the role of entrepreneurial skills (ES) and ecosystem (EE) in supporting the development of small and medium-sized enterprises (SMEs) to achieve transformational entrepreneurship (TE) in an emerging economy. It is apparent that many SMEs are not entrepreneurial and growth oriented due to various factors even though they contribute to economic development. Thus, if more of them were entrepreneurial and growth orientated, this would be beneficial for developing economies.

Design/methodology/approach – Using a 3-model hierarchical regression analysis, the study examined 576 valid responses from Nigerian SMEs. Harman's single-factor test was conducted to assess common method bias (CMB), and the results indicated it was not a concern. ES were assessed using six constructs: business ethics, management, strategy, financial management, marketing and opportunity identification. The EE was evaluated based on access to funding, markets and resources, as well as the policy/regulatory environment. Gender and business age were included as control variables.

Findings – A shortage of essential ES and inadequate EE to effectively support TE outcomes. The study introduces a validated framework demonstrating how ES and EE contribute to TE outcomes. These insights offer policymakers and practitioners a valuable guide, highlighting the critical need to strengthen both ES and EE to support TE outcomes.

Originality/value – This research advances and empirically tests a theoretical framework demonstrating the correlation between ES and EE in achieving TE outcomes among small businesses. It offers valuable implications for other Global South economies with similar developmental contexts. It helps address the existing gap by proposing a more holistic approach to SME support for achieving TE.

Keywords Emerging economy, Entrepreneurial skills, Entrepreneurial ecosystem, SME, SSA, Transformational entrepreneurship

Paper type Research article

1. Introduction

This study adopted Marmer's (2012) view that transformational entrepreneurship (TE) can create a socio-economic value system with both economic benefits and long-term societal impact, thereby supporting national and regional development. It is apparent that many SMEs are not entrepreneurial and growth oriented due to various factors even though they contribute to national economic development. Thus, if such firms could be encouraged to be more entrepreneurial and growth orientated, this would be beneficial for developing economies as a whole.

Making TE crucial for Small and Medium Enterprises (SMEs) in emerging economies, especially in Nigeria and sub-Saharan Africa (SSA), where economic growth is limited and national

Disclosure of interests: The authors have no conflicts of interest. The authors are solely responsible for the content and writing of the paper.

Journal of Small Business and Enterprise Development
© Emerald Publishing Limited
e-ISSN: 1758-7840
p-ISSN: 1462-6004
DOI 10.1108/JSBED-08-2025-0526

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economies are underdeveloped (Maas *et al.*, 2019; Egere *et al.*, 2022). Moreover, there is a shortage of SME innovativeness, productivity, and sustainability within SSA and several emerging economies (Igwe *et al.*, 2018). Thus, it is essential to promote TE aspirations within SSA and emerging economies. Moreover, TE is critical to SMEs, as they are the primary drivers of economic activity in emerging economies and vehicles through which innovation, productivity, and societal impact can be achieved. Moreover, TE provides a holistic, systemic framework that explains how ES and EE conditions interact to determine whether SMEs move beyond subsistence-based to become high-impact, growth-oriented, and socially beneficial businesses (Maas *et al.*, 2019; Egere *et al.*, 2025). As such, understanding TE in the context of SMEs is essential for designing policy interventions and EE reforms that can unlock their TE potential (Egere *et al.*, 2025).

TE advances a new perspective that creates innovative and productive ventures to improve business sustainability, generate employment, create wealth, deliver long-term economic and societal benefits, and drive domestic and regional development (Gamidullaeva *et al.*, 2020). Therefore, this study argues that SMEs should possess the requisite entrepreneurial skills (ES), and the entrepreneurial ecosystem (EE) should be adequate and supportive to realise these benefits. The implication is that the development of SMEs can help realise TE outcomes and create this socio-economic value system for emerging economies. However, there is limited focus on investigating ES alongside EE to support SME systemic development, which is crucial for TE outcomes. Previous work has argued that adequate EE configuration is essential for TE (Maas *et al.*, 2019; Egere *et al.*, 2025). Similarly, Maas *et al.* (2019) argued that, to sustain TE, SMEs should be examined without discounting EE and private and public institutions. Maas *et al.* (2019) argue that TE should comprise a holistic examination of multiple factors in a symbiotic manner.

Nigeria represents one of the most significant yet most constrained SME landscapes in sub-Saharan Africa. Nigerian SMEs face systemic challenges, including infrastructure deficits and weak institutions. These result in subsistence-oriented, necessity-driven entrepreneurship, which limits innovation and productivity. Therefore, SMEs in Nigeria require TE (Maas *et al.*, 2019), as it provides a holistic pathway for scaling beyond subsistence activities into high-growth ventures that generate employment and socio-economic value. Given Nigeria's aspirations for economic diversification, understanding how ES and EE drive TE is essential to advancing the country's development agenda and that of other emerging economies (Agyapong and Boohene, 2020; Barrera-Verdugo *et al.*, 2025). Consequently, it is essential to determine whether TE outcomes and benefits can be realised by examining ES alongside EE in Nigeria, an emerging and regional economy in SSA. As a result, this study focuses on ES alongside EE. This is because ES has been suggested to affect SME systemic development (Inyang and Enuoh, 2009; Maas *et al.*, 2019), and EE factors have been the focus of empirical research on driving TE outcomes (Ratten and Jones, 2018; De Sordi *et al.*, 2024). In emerging economies, SMEs have not performed as well as in developed nations, and their aspiration to achieve TE remains under-researched (Maas *et al.*, 2019). Moreover, TE cannot happen systematically by chance. It is a holistic and systemic process, supported by new perspectives that involve the EE and national government initiatives aimed at developing and sustaining SMEs (Ratten and Jones, 2018; Maas *et al.*, 2019). Achieving TE, which creates innovative and productive ventures, can improve SME sustainability, productivity, and long-term domestic and regional development benefits.

ES is a cluster of skills that SMEs require to succeed (Inyang and Enuoh, 2009; Hashim *et al.*, 2018; Igwe *et al.*, 2022), and EE comprises systemic, productive, cooperative, and dynamic interactions among the various elements within the enterprise environment that support business development (Stam and Spigel, 2016; Kansheba and Wald, 2020; Simba *et al.*, 2024). Nigerian SMEs face several challenges, including a shortage of ES (Inyang and Enuoh, 2009), an inadequate EE (Egere *et al.*, 2025), a challenging investment climate (Igwe *et al.*, 2018), and limited growth and contribution to domestic and national development (Gamidullaeva *et al.*, 2020; Isiaka, 2022). For example, Inyang and Enuoh (2009) link the Nigerian situation to a lack of requisite ES, and Isiaka (2022) views it as limited ES

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development. Moreover, the investment climate and EE landscape, which are challenging for SMEs, are recognised as undermining SMEs' development (Igwe *et al.*, 2018). Thus, this research focuses on ES alongside EE support for SMEs in an emerging economy. The proposition in this study is that the requisite ES and a supportive EE can help SMEs develop and produce TE outcomes. Moreover, EE provides the essential mechanisms that enable SMEs to acquire the skills needed to support their systemic development (Maas *et al.*, 2019; Egere *et al.*, 2022). Considering the conceptual framework and hypotheses presented, the study aims to address the key research question of how do ES and EE support factors interact to influence the systemic development of SMEs in Nigeria toward achieving TE outcomes by examining ES alongside EE, to understand their impact on SME systemic development, and to assess whether these dynamics enable SMEs to contribute to TE outcomes within an emerging economy context.

In this light, this study investigates Nigerian SMEs. It provides a comprehensive analysis of ES alongside EE, which the evidence suggests is critical for facilitating SMEs' systemic development and helping produce TE outcomes (Maas *et al.*, 2019). Moreover, previous studies have reported on the criticality of ES and the dynamism of EE in facilitating the systemic development of SMEs (Inyang and Enuoh, 2009; Pulka *et al.*, 2021). However, a holistic approach to support SME development that leads to TE outcomes, comprising a symbiotic study of ES and EE, is necessary (Maas *et al.*, 2019). This new perspective is critical because TE offers long-term socio-economic benefits that could help emerging economies foster socio-economic growth (Agyapong and Boohene, 2020; Onyeje *et al.*, 2020; Warnecke, 2025). Building on the above discussion, this paper first examines ES, EE, and SME development to provide a theoretical foundation for this research. Secondly, the conceptual framework, hypothesis, and study methodology are discussed. Thirdly, the analysis and findings are discussed, and finally, the research contribution, recommendations for policy and practice, and future research directions are provided.

2. Theoretical background: entrepreneurial skills (ESs)

SMEs require specific skills to start a new venture, particularly in developing countries, where enterprise education is evolving, and critical business support resources are limited (Inyang and Enuoh, 2009). These essential skills, defined as ES (Man *et al.*, 2002; Barazandeh *et al.*, 2015), are significant and helpful in creating the path for business development. Moreover, ES has stronger connections to business development and performance and is vital for advancing the strategic behaviours required to support SME development (Igwe *et al.*, 2022; De Sordi *et al.*, 2024). It is widely accepted that entrepreneurial education and access to entrepreneurial training, including prior work experience and business experience, can facilitate the development of ES (Pulka *et al.*, 2021; Ratten and Jones, 2021). In this regard, Universities and skills development hubs can support entrepreneurship and SME development (Ratten and Jones, 2021; Simba *et al.*, 2024).

2.1 Entrepreneurial ecosystem (EE)

The EE landscape is crucial to supporting the systemic development of SMEs. In this regard, access to EE support factors, such as funding, marketing, resources, and an enabling policy and regulatory framework, is critical for SMEs because it enables productivity and sustainability (Theodoraki and Catanzaro, 2022) (see Figure 1).

The process of identifying a suitable framework for the EE emerged from a distinctive set of circumstances reflecting the economy from a domestic perspective (Igwe *et al.*, 2020; Audretsch and Belitski, 2021; Bichler *et al.*, 2022) and regional and global context (Prokop, 2021; Theodoraki and Catanzaro, 2022). Indeed, domestic markets with income-paying consumers were the essence of profit-driven businesses (Drexler *et al.*, 2014). Moreover, a developed market is crucial for SMEs in a region (Stam and Spigel, 2016). Simultaneously,

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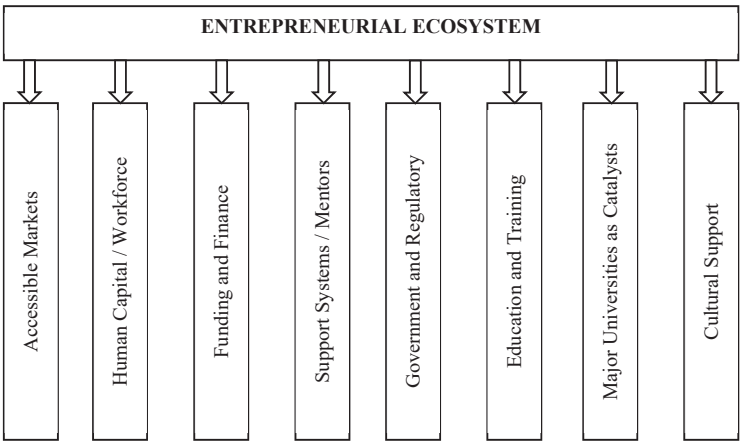


Figure 1. Eight pillars of the entrepreneurial ecosystem. **Soure(s):** Drexler *et al.* (2014)

markets with a deeper, possibly significant labour force provide an unrestricted basis for scaling early-stage ventures (Drexler *et al.*, 2014). In addition, businesses with substantial financial assets would benefit from flexibility to procure the vital resources needed to sustain growth (Cao and Shi, 2020). This is especially true in developing economies, where SMEs often face a shortage of financial support (Agyapong and Boohene, 2020). Moreover, funds enable investments and deepen consumer research. Within support systems, EE environments vary significantly in the enabling mechanisms they offer (Bichler *et al.*, 2022), which help SMEs connect to the entrepreneurial architecture for development (Onyeje *et al.*, 2020). Furthermore, government policies and regulatory frameworks across emerging economies (EEs) can accelerate or inhibit new venture creation and scalability (Onyeje *et al.*, 2020).

In Global South nations, several EE factors support entrepreneurship and are critical to SME development (Kansheba and Wald, 2020; Egere *et al.*, 2025). These EE factors are interconnected components, including funding, markets, resources, and policy and regulations, that enable entrepreneurial activities and behaviours, thereby ensuring the economic development and functionality of SMEs (Onyeje *et al.*, 2020). These factors, which symbiotically perform diverse EE functions, determine the systemic development and sustainability of SMEs (Maas *et al.*, 2019; Onyeje *et al.*, 2020). As a result, it is realistic to cultivate the EE needs to produce a distinct architecture that sympathetically supports SMEs (Cao and Shi, 2020). However, this approach requires a substantial shift from the current policy framework in the EE in Nigeria and in emerging economies with similar entrepreneurial settings and SME challenges. Furthermore, the ES from the extant literature discussed above emphasise that SMEs require a cluster of ES to operate effectively, including ethical judgement (Inyang and Enuoh, 2009), managerial capability (Smith and Chimucheka, 2014), strategic orientation (Onakoya *et al.*, 2013; Chaudhary and Minz, 2025), financial literacy (Nwachukwu, 2012), marketing skills (Adisa *et al.*, 2014), and opportunity recognition (Man *et al.*, 2002). These skills have been widely discussed independently in entrepreneurship research, but the literature has not previously examined their symbiotic effect on SME development within an EE toward achieving TE. Therefore, this study argues that these ES elements can be integrated into a theoretical TE model that provides socio-economic benefits.

2.2 ES, EE, and SME development

In developing countries, the number of subsistence businesses is increasing due to various factors, including the high SME failure rate (James-Unam *et al.*, 2015; Amalu and Ajake, 2019). Prominent advocates of small business development (Schoar, 2010; Marmer, 2012;

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Maas *et al.*, 2019) argue that combining business ethics, scalability, sustainability, and technology with traditional and social entrepreneurship can create a new socioeconomic value system. This new enterprise system aims to create innovative enterprises that address the pressing problems of developing economies, such as youth unemployment and limited economic development (Ratten and Jones, 2018; Godwin and Simon, 2021). Notably, SMEs serve as a stimulus for innovation, productivity, job creation, competitiveness, and secure employment for citizens (Egere *et al.*, 2022), thereby boosting long-term societal and economic impact (Marmer, 2012).

Enterprise activities and behaviour are fundamental to venture development and national socio-economic growth. However, the argument is that the need for SME development to support TE outcomes in developing economies stems from the shortage of ES and inadequate EE (Inyang and Enuoh, 2009; Pulka *et al.*, 2021; Egere *et al.*, 2022). Moreover, in several developing countries, social prestige encourages intelligent individuals to favour government service or high-status careers, such as university professorships, law, or medicine, rather than venturing into business. Furthermore, if the ecosystem fails to support SMEs due to unfavourable, restrictive business regulations, fewer creative individuals may endogenously start businesses. In this regard, entrepreneurial activities are mainly disadvantaged, highlighting a lack of SME development and, ultimately, a TE shortage in developing economies. For these reasons, ES, alongside EE, is relevant to study, as it is critically significant to the limited growth of SMEs in realising TE outcomes in emerging economies (Ratten and Jones, 2018; Egere *et al.*, 2022). From the emergent discussion of the theoretical pillars supporting this research, SMEs with the requisite ES, supported by a dynamic EE mechanism, would facilitate SME development, resulting in TE outcomes that promote socio-economic development and the growth of the national economy. In the expectation, relevant institutional actors and players, universities, stakeholders, businesses, and the government work harmoniously.

3. Conceptual gap and TE framework

The literature advanced the distinction between subsistence and TE (Schoar, 2010). However, it remains conceptually underdeveloped with respect to SMEs in emerging economies because the TE literature is largely macro-oriented, emphasising EE configurations and national development priorities, while paying limited attention to the micro-level capabilities of SMEs and how these interact with EE factors in fragmented settings (Egere *et al.*, 2022). Another conceptual gap concerns the disjointed treatment of ES and EE factors (Maas *et al.*, 2019). Previous studies have identified the critical role of ES in SME performance (Igwe *et al.*, 2022) and the significance of EE support (Stam and Spigel, 2016; Fate, 2016). However, the literature typically develops in parallel. Few studies theorise how specific configurations of ES help SMEs access and leverage EE support (Egere *et al.*, 2022), particularly in contexts where EE is underdeveloped, as is often the case in developing economies, where the TE literature has yet to integrate these two domains into a unified explanatory framework fully (Maas *et al.*, 2019). Current TE conceptualisations are largely context-generic, offering limited insight into how TE manifests in settings characterised by infrastructural deficits and unstable macroeconomic conditions (Ratten and Jones, 2018). The evidence from Nigeria in this study shows that SMEs report substantial deficits in ES, including financial management, marketing, and strategy, alongside weak EE support. These findings suggest that TE cannot be expressively theorised in emerging economies without recognising that the same EE architecture will not perform similarly for SMEs with different ES profiles, and that EE value must be understood in relation to the capabilities of the actors embedded within it.

To address these gaps, this study proposes an ES and EE Framework for TE in emerging economies. The framework advances TE theory in three ways. Firstly, TE is an emergent outcome and not a stand-alone construct. The framework conceptualises TE not as a discrete variable but as an emergent outcome arising when SMEs possess the requisite ES across six domains (ethics, management, strategy, finance, marketing, and opportunity identification)

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(Egere *et al.*, 2025). These ES support and enable access to key EE support factors (funding, markets, resources, and policy/regulation). Thus, TE is viewed as a systemic consequence of the symbiotic relationship between ES and EE configurations. Secondly, ES capability as a driver of EE support. The findings indicate that ES significantly predicts EE support outcomes. Therefore, the framework argues that ES is a driver that determines whether existing EE configurations are functionally accessible (Egere *et al.*, 2022). In fragmented EE, the relationship between EE support and EE accessibility is facilitated by the ES capabilities. This extends ES/EE theory by incorporating a resource-based view (Barney, 1991). The EE is not simply good or bad; its effectiveness depends on the ES profiles of the SMEs embedded within it. Lastly, context-sensitive TE in fragile institutional settings. The framework embeds TE within the institutional realities of emerging economies, recognising that ES deficits and EE inadequacies are mutual. It suggests that in contexts such as Nigeria, TE is unlikely to emerge solely from EE reforms or from ES training in isolation. Instead, TE requires co-creation interventions that develop ES and EE factors (Maas *et al.*, 2019). This contextualises TE as a co-produced outcome of ES development and EE reconfiguration, which is particularly relevant for policy and practice in the emerging economies. Conceptually, the ES and EE symbiotic framework extends current understanding of TE by positioning the relationship between ES and EE, rather than in isolation, as the mechanism through which SMEs transition from subsistence to TE. It provides a basis for future theoretical work modelling TE using co-creation constructs (e.g. the interaction between ES and EE) and for empirical studies testing whether specific ES and EE factors are associated with higher levels of innovation and socio-economic impact in emerging economies. A three-model hierarchical design framework was employed. Model 1 predicted the EE factors from ethics, business, and strategy skills. Model 2 predicted financial, marketing, and opportunity identification skills. Model 3 controlled with the gender and age of the SME. The conceptual framework in Figure 2 below indicates that ES, together with an adequate EE configuration, can help SMEs achieve TE outcomes.

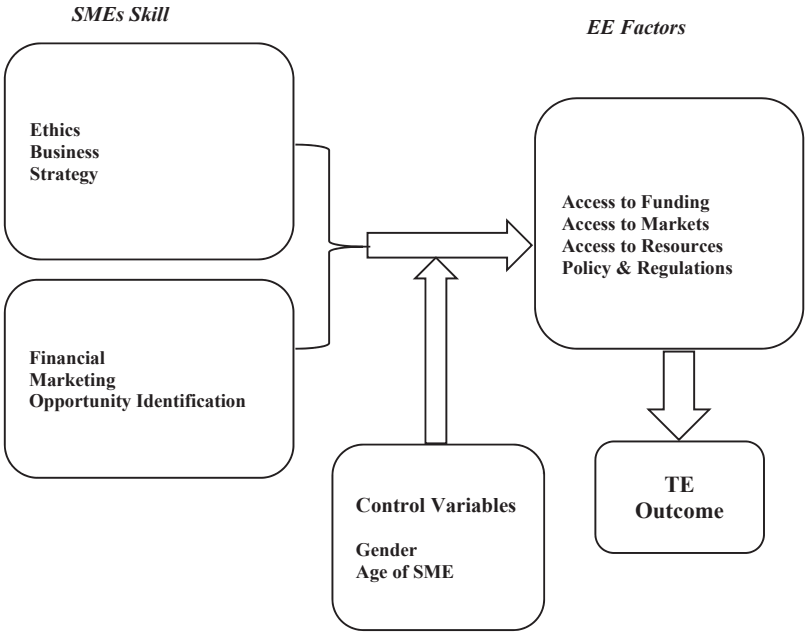


Figure 2. Conceptual framework

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3.1 Hypothesis development

This study argues that TE emerges from the symbiotic relationship between ES (Inyang and Enuoh, 2009; Man *et al.*, 2002; Barazandeh *et al.*, 2015) and EE (Stam and Spigel, 2016; Audretsch and Belitski, 2021; Fate, 2016). In emerging economies like Nigeria, where SMEs face both institutional constraints and infrastructural deficits, the correlation between ES and EE is critical for supporting SME development from subsistence entrepreneurship to growth-oriented, innovative ventures (Maas *et al.*, 2019). As a result, SMEs' ability to leverage EE support depends significantly on having the requisite ES to engage effectively with these resources. The hypotheses below, informed by the literature, propose that each ES dimension affects the accessibility and benefits of EE support in achieving TE outcomes.

H1. Requisite business ethics skills, along with access to funding, market accessibility, resource availability, supportive policy, and regulations, help SMEs achieve TE.

Business ethics skills are fundamental for SMEs in managing business relationships, ensuring transparency, and maintaining long-term legitimacy in the market. Ethical conduct in entrepreneurship fosters trust among stakeholders, including investors, customers, and regulators, a dynamic that is particularly crucial in emerging economies with high institutional uncertainty (Inyang and Enuoh, 2009; Maas *et al.*, 2019). Studies have shown that SMEs with strong ethical foundations are better positioned to access critical EE resources, such as funding and market opportunities, necessary for achieving TE outcomes (Maas *et al.*, 2019; Egere *et al.*, 2022). Therefore, it is hypothesised that business ethics skills enable SMEs to interact effectively with EE support and benefit from it, towards TE.

H2. Requisite business management skills, along with access to funding, market accessibility, resource availability, supportive policy, and regulations, help SMEs achieve TE.

Business management skills are essential for the effective coordination of SMEs' innovation and sustainability. Previous research indicates that managerial capabilities directly affect business performance and sustainability, particularly in challenging environments where access to resources and support is limited (Inyang and Enuoh, 2009; Pulka *et al.*, 2021). In the context of fragmented EE, management skills are crucial for SMEs to effectively leverage available EE support, including funding and market access, and to scale operations to achieve TE outcomes. This leads to the hypothesis that SMEs with stronger management skills can leverage EE support to achieve TE.

H3. Requisite business strategy skills, along with access to funding, market accessibility, resource availability, supportive policy, and regulations, help SMEs achieve TE.

Strategic business skills enable SMEs to define clear goals, adapt to changing market conditions, and sustain long-term business growth. Literature highlights the importance of strategic orientation in ensuring that SMEs are competitive and resilient, particularly in dynamic and resource-constrained environments (Smith and Chimucheka, 2014; De Sordi *et al.*, 2024). In emerging economies where market systems may be volatile, strategic planning becomes a key tool for entrepreneurs to navigate EE challenges. Thus, SMEs with strong strategic skills are more likely to harness EE support effectively and achieve TE, supporting the hypothesis that strategic skills increase the likelihood of TE outcomes.

H4. Requisite financial skills, along with access to funding, market accessibility, resource availability, supportive policy, and regulations, help SMEs achieve TE.

Financial management skills are crucial for SME sustainability and growth, as they determine how well entrepreneurs manage resources, allocate funds, and plan for long-term performance (Inyang and Enuoh, 2009; Nwachukwu, 2012). In emerging economies, where access to financing is often limited, SMEs with strong financial literacy are better equipped to navigate funding challenges and optimise the use of limited resources. Given that EE factors such as

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funding and market access play a significant role in facilitating SME growth, financial skills are crucial for effectively leveraging these resources. This leads to the hypothesis that SMEs with strong financial management capabilities will be better positioned to access and leverage EE support towards achieving TE outcomes.

H5. Requisite marketing skills, along with access to funding, market accessibility, resource availability, supportive policy, and regulations, help SMEs achieve TE.

Marketing skills are integral to the sustainability of SMEs, as they enable entrepreneurs to understand market needs, innovate, and compete effectively (Adisa *et al.*, 2014). In emerging economies, where access to markets may be limited, the ability to identify market opportunities and differentiate products becomes critical for SMEs looking to achieve TE. Studies suggest that marketing competence directly impacts SME by enhancing their competitiveness (Adisa *et al.*, 2014; De Sordi *et al.*, 2024). Therefore, SMEs with strong marketing skills are expected to leverage EE support for market access more effectively to achieve TE outcomes.

H6. Requisite skills in opportunity identification, along with access to funding, market accessibility, resource availability, supportive policies, and regulations, help SMEs achieve TE.

Opportunity identification is a crucial entrepreneurial skill that allows SMEs to spot emerging markets, unmet needs, and potential areas for innovation (Man *et al.*, 2002; Lateef and Keikhosrokiani, 2022). In resource-constrained environments like Nigeria, the ability to identify and capitalise on opportunities can significantly impact SME growth. The literature highlights the importance of opportunity recognition in driving entrepreneurial success and innovation, particularly when combined with access to EE support (Lateef and Keikhosrokiani, 2022). As a result, it is hypothesised that SMEs with strong opportunity-identification skills are more likely to use EE resources effectively to achieve TE outcomes.

4. Methodology: study context

This study is conducted at the firm level, and each SME is treated as a single data point. A total of 576 valid responses were obtained from SMEs across various business sectors in Nigeria. The SMEs were diverse in size, ranging from micro to medium enterprises, and included business owners or managers as respondents. The firm-level focus allows for an in-depth examination of how individual SMEs experience and interact with the EE and how their ES may contribute to TE outcomes. This quantitative study employed a drop-and-pick survey type.

4.1 Sample and unit of analysis

Assessing ES and EE is challenging because an accepted measurement tool is needed. As a result, a questionnaire was developed to collect data from Nigerian SMEs, with support from the Small and Medium Enterprises Development of Nigeria (SMEDAN), which records and supports Nigerian SMEs. SMEDAN (2021) classified micro as 1–10, Small as 11–49, and medium as 50–199 employees. SMEDAN keeps records of circa 1,530,000 SMEs. Yamane's (1967) formula was employed to determine the research sample size:

$$\boldsymbol{s} : \frac{\boldsymbol{N}}{[1 + N\,(e^2)]}$$

S is the sample size, *N* is the target population, and *e* is a marginal error (degree of freedom). With a 95% confidence level, a 2.5% margin of error applied, and a population of 1,530,000, the calculation was as follows:

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$$s: \frac{1530000}{\left[1\left[1+1530000\left(0.025^2\right)\right]\right.} s: \frac{1530000}{\left[1+1530000\left(0.000625\right)\right]} s: \frac{1530000}{957.25} = 1598$$

Consequently, 1,600 SMEs were randomly selected from all industry groups in Nigeria, and 576 (36%) valid responses were analysed (See Figure 3). SMEs were considered the unit of analysis for the study, with their owners and managers as the primary targets. This study was conducted at the firm level, meaning that each SME constituted a single data point.

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	413	71.7	71.7	71.7
	Female	163	28.3	28.3	100.0
	Total	576	100.0	100.0	

SMEEducation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary/Secondary	32	5.6	5.6	5.6
	Diploma	120	20.8	20.8	26.4
	Bachelor	370	64.2	64.2	90.6
	Masters	54	9.4	9.4	100.0
	Total	576	100.0	100.0	

SMEPreviousExperience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Nil	264	45.8	45.8	45.8
	<1 Year	46	8.0	8.0	53.8
	1-5 Years	127	22.0	22.0	75.9
	6-10 Years	96	16.7	16.7	92.5
	11-15 Years	43	7.5	7.5	100.0
	Total	576	100.0	100.0	

AgeofSME

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-5 Years	241	41.8	41.8	41.8
	6-10 Years	220	38.2	38.2	80.0
	11-15 Years	107	18.6	18.6	98.6
	16-20 Years	8	1.4	1.4	100.0
	Total	576	100.0	100.0	

Figure 3. SME profile

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The respondents were the owner or manager of the SME, who was assumed to possess adequate knowledge of the firm, its operations, and its interactions with the EE. Only one respondent per SME was surveyed. Therefore, no data conversion was necessary to combine individual-level responses into firm-level constructs. The perspectives provided by the owner/manager were accepted as typical of the SMEs' ES and EE conditions, and the owner/manager was considered the primary target for firm-level attributes.

4.2 Questionnaire development

To assess ES and EE in the context of Nigerian SMEs, no widely accepted measurement tool existed to capture the unique challenges SMEs face in emerging economies. For example, scales commonly used to measure EE in developed nations often fail to account for the institutional weaknesses, infrastructural deficits, and informal business practices prevalent in emerging economies (Stam and Spigel, 2016; Audretsch and Belitski, 2021). These scales also tend to overlook the dynamic and fragmented nature of the EE in settings such as Nigeria, where SMEs face significant challenges in accessing resources, navigating regulatory frameworks, and building capacity. Given these limitations, the scale developed in this study was designed to address the contextual realities of Nigerian SMEs. This new instrument incorporates both the deficiencies in ES and the unique characteristics of the Nigerian EE, such as limited access to funding, markets, and infrastructure, as well as regulatory challenges. The scale was tested and validated through exploratory factor analysis (PCA), reliability testing, and construct assessment, ensuring its empirical robustness in the context of this study. By developing a new scale tailored to the Nigerian context, this research provides a more accurate measurement of ES and EE factors that impact TE outcomes. The new scale thus represents a significant improvement over existing tools, as it accounts for the specific challenges SMEs in emerging economies face and offers a better understanding of how to address them to drive TE. The questionnaire was designed to support the study's research aim. It was administered as a drop-and-pick-up survey afterward, using checklists and a Likert scale (Hair *et al.*, 2015) to simplify administration and enhance participant understanding. The structured questionnaire consisted of Section A, which examined the demographics of the SME owner or manager, including gender, education, previous experience, and current experience. Section B measured the ES level for the six skill constructs. Afterward, Section C assessed and measured four critical EE factors. Harman's single-factor test was used to assess the presence of common method bias (CMB). The analysis revealed that a single factor accounted for less than 50% of the total variance, suggesting that CMB is not a concern in this study (Kock, 2020).

5. Data analysis: Kaiser-Meyer-Olkin (KMO) test

The KMO test was used to assess the sampling adequacy of the ES and EE factors. The ES test reveals a KMO of 0.848 (Tables 1 and 2), Bartlett Test of Sphericity: $\chi 2 = 6901.136$, df = 91, $p < 0.000$). The EE test reveals a KMO of 0.801 (Table 3), and the Bartlett Test of Sphericity: $\chi 2 = 8751.555$, df = 21, $p < 0.001$. The KMO values obtained were greater than 0.6, exceeding the 0.5 threshold (Hair *et al.*, 2015), indicating that the sample is sufficient and valid

Table 1. ES KMO test

KMO and Bartlett's test		
Kaiser-Meyer-Olkin measure of sampling adequacy		0.848
Bartlett's Test of Sphericity	Approx. Chi-Square	6901.136
	df	91
	Sig	0.000

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Table 2. EE KMO test

KMO and Bartlett's test		
Kaiser-Meyer-Olkin measure of sampling adequacy		0.801
Bartlett's Test of Sphericity	Approx. Chi-Square	8751.555
	df	21
	Sig	0.000

Table 3. ES PCA analysis

Communalities		
	Initial	Extraction
Ethics Skill	1.000	0.799
Bus Skill	1.000	0.848
Bus Strategy Skill	1.000	0.637
Financial Skill	1.000	0.657
Marketing Skill	1.000	0.778
Opportunity Identification Skill	1.000	0.721

Note(s): Extraction method: principal component analysis

for factor analysis. The Bartlett Sphericity Test also indicates that a sufficient relationship exists among the variables (sig = 0.000, df > 0.7) (Burns and Burns, 2008).

5.1 Exploratory factor analysis (EFA)

For the EFA, the principal component analysis (PCA) with varimax rotation was performed with the 576 usable data to examine the ES (Table 3) and EE factors (Table 4). The research examined the factor structure and recommended removing elements with loadings below 0.5 from the model (Anderson and Gerbing, 1988; Hancock *et al.*, 2010). The research factored the ES and EE factors to examine their construct loadings. The observed variables loaded correctly if they had a loading of 0.5 or higher on a factor and if the difference between the main loading and other cross-loadings was 0.3 or greater. In the varimax rotation, only items with significant loadings exceeding 0.500 were used in the regression analysis (Parasuraman *et al.*, 1988). Tables 5 and 6 below present the total variance explained, with each construct accounting for its own share of the variance.

5.2 Reliability and viability

By assessing the internal consistency of the factored variables, the study achieved dependability. The reliability test used statistical methods to examine consistency

Table 4. EE PCA analysis

Communalities		
	Initial	Extraction
Access to Funding	1.000	1.000
Access to Market	1.000	1.000
Access to Resources	1.000	1.000
Policy and Regulations	1.000	1.000

Note(s): Extraction method: principal component analysis

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Table 5. ES total variance explained

Total variance explained						
	Initial Eigenvalues			Extraction sums of squared loadings		
Component	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	3.140	52.336	52.336	3.140	52.336	52.336
2	1.300	21.668	74.003	1.300	21.668	74.003
3	0.701	11.682	85.685			
4	0.561	9.355	95.040			
5	0.210	3.501	98.540			
6	0.088	1.460	100.000			

Note(s): Extraction method: principal component analysis

Table 6. EE total variance explained

Total variance explained						
	Initial Eigenvalues			Extraction sums of squared loadings		
Component	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	4.000	100.000	100.000	4.000	100.000	100.000
2	0.000	0.000	100.000			
3	0.000	0.000	100.000			
4	0.000	0.000	100.000			

Note(s): Extraction method: principal component analysis

(Kothari, 2004; Hair *et al.*, 2015). The study used Cronbach's α to assess reliability and consistency. Cronbach's Alpha results for ES were 0.870 (0.9) (Table 7), and EE had a Cronbach's Alpha of 1.0 (Table 8). Thus, the constructs had Cronbach's α above 0.7, indicating higher reliability (Hair *et al.*, 2015). A construct's validity depends on how the construct items represent the measured themes (Parasuraman *et al.*, 1988). The construct used in this research was valid because it reflects prior work on ES (e.g. Inyang and Enuoh, 2009) and EE (e.g. Fate, 2016) in Nigeria. Tables 9 and 10 below present item-total statistics that further clarify the reliability of the ES and EE constructs.

Table 7. ES reliability test

Reliability statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
0.870	0.870	6

Table 8. EE reliability test

Reliability statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
1.000	1.000	4

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Table 9. Item-total statistics for the ES

Item-total statistics	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Squared multiple correlation	Cronbach's alpha if item deleted
Ethics Skill	12.47	8.406	0.771	0.826	0.676
Bus Skill	12.38	7.883	0.790	0.849	0.666
Financial Skill	12.95	12.043	0.389	0.466	0.778
Marketing Skill	12.74	10.289	0.576	0.589	0.737
Opportunity Identification Skill	12.42	8.248	0.712	0.627	0.693
Bus Strategy Skill	12.99	14.049	−0.092	0.107	0.848

Table 10. Item-total statistics for the EE

Item-total statistics	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Access to Funding	3.88	1.869	1.000	1.000
Access to Market	3.88	1.869	1.000	1.000
Access to Resources	3.88	1.869	1.000	1.000
Policy and Regulations	3.88	1.869	1.000	1.000

The two data analysis approaches were biographical data for SMEs and multiple linear regression (MLR). To execute the MLR, the collected data were coded into SPSS software version 25 to address the research aim (Stevens *et al.*, 2012).

6. Results and findings: biographical data

As indicated above, 576 (36%) usable responses were obtained for the analysis. Males were 413 (72%), and females were 163 (28%) (see Figure 3 below). The survey reveals satisfactory levels of gender diversity, though male SME owners and managers remain the dominant group. However, the 28% increase in female business ownership was encouraging, as 2013 SMEDAN data indicated that female ownership was 23% at the time. SME owners/managers with bachelor's degrees totalled 372 (64%), and diploma degrees totalled 120 (21%). In comparison, master's degree holders accounted for 54 (9%), and those at the primary/secondary level accounted for 32 (6%). Of the 546 owners/managers (94%) holding a university degree, 94% indicate a growing trend in graduate business ownership, consistent with SMEDAN data, which reported that more than 51% of SMEs have graduate ownership. Prior experience shows that 264 (46%) had none before starting a business. A modest 46 (8%) had less than a year of experience. 127 (22%) had 1–5 years of prior experience, followed by 96 (17%) with 6–10 years, and 43 (8%) with 11–15 years. The statistics show that 241 (42%) had been in business for between one and five years. Overall, 220 (38%) were in business for 6–10 years, and 107 (19%) were in business for 11–15 years. Only 8 (1%) had been in business for over 15 years. The evidence supports a growing rate of new business uptake.

6.1 SMEs ES response rate

In analysing the SMEs' business ethics, 62% and 2% say they were less competent and not competent, respectively. While 32% and 3% say they are skilled and qualified, respectively.

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Therefore, 63% indicate they are less competent in business management. 72% and 9% say they are qualified and very competent, respectively. 1% declined assent. When analysing business strategy skills, 76% and 5% indicate they are less qualified and incompetent. 6% say they are qualified, while 13% declined assent. Overall, 84% report being less competent in financial management. While 9% say they are qualified. 7% declined assent. In analysing marketing management, 75% report being less competent. While 21% say they are competent. 4% declined assent. In summary, when analysing opportunity identification, 51% and 5% indicate they are less competent and not competent, respectively. 17% and 10% say they are competent and very competent, respectively. In total, 17% declined assent. This result reflects the high level of SME failure and limited development in Nigeria (Onyeje *et al.*, 2020; Egere *et al.*, 2025). The above statistics indicate why SMEs' systemic development is under pressure.

6.2 EE response rate

When analysing responses regarding EE support for the business, 69% strongly disagree that access to funding is easy. These statistics serve as evidence of SMEs' limited development in Nigeria (Igwe *et al.*, 2018) and the shortage of TE (Agyapong and Boohene, 2020; Egere *et al.*, 2022), as funding is crucial to TE. Moreover, insufficient funding hinders SME development, as financial resources are crucial to business growth (Onyeje *et al.*, 2020; Godwin and Simon, 2021). Regarding market access, 64% strongly disagree that it is easily accessible. Market failure in developing economies has limited SME development (Inyang and Enuoh, 2009; Agyapong and Boohene, 2020). Moreover, SMEs' involvement in supply chains is weakened by the need for more critical infrastructure, such as roads and transportation systems, to facilitate market access (Fate, 2016; Igwe *et al.*, 2018; Egere *et al.*, 2022). The statistics indicate a shortage of critical infrastructure, which negatively affects Nigerian SMEs (Agwu and Emeti, 2014; Fate, 2016; Onyeje *et al.*, 2020).

The analysis of resource access reveals that 58% of respondents indicate that resources are inaccessible. This confirms the reasons for the lack of SME development in Nigeria. Access to business resources, including raw materials, data, information, tools, and infrastructural support, is challenging to obtain in developing countries (Atiase *et al.*, 2017; Onyeje *et al.*, 2020; Godwin and Simon, 2021). Regarding policy and regulations, 62% of respondents strongly disagree that the ecosystem is adequate for their business. Weak policies and regulations pose a significant challenge, leading to duplication. For example, companies reported that products registered with the National Agency for Food and Drug Administration and Control (NAFDAC) were required to undergo the same registration process as those registered with the Standard Organisation of Nigeria (SON) (Fate, 2016).

7. Statistical analysis: Descriptive Statistics

The descriptive statistical analysis (see Figure 4 below) presents the number of SME respondents, along with the mean, standard deviation, and variance statistics. Overall, the datasets showed low standard deviations across variables, indicating that the data clustered around the mean. Therefore, because the data reflect the actual values within the mean range, it is a true reflection of the population. Moreover, a low variance indicates the data points are close to the mean and to each other, suggesting uniformity in the judgement of the situation (Burns and Burns, 2008).

7.1 Regression analysis

The study executed a multiple linear regression analysis (Berry, 1993). Consistent with Poole and O'Farrell (1971), the regression is denoted as:

$$\mathrm{k}\,\mathrm{Y} = \mathrm{a} + \Sigma \mathrm{bi}\,\mathrm{Xi} + \mathrm{u}\,\mathrm{i} = 1$$

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	N	Mean	Std. Deviation	Variance
Gender	576	1.28	0.451	0.203
Age of SME	576	2.80	0.787	0.619
Ethics Skill	576	2.72	1.020	1.040
Bus Skill	576	2.81	1.104	1.219
Bus Strategy Skill	576	2.20	0.621	0.386
Financial Skill	576	2.24	0.595	0.354
Marketing Skill	576	2.45	0.822	0.676
Opportunity Identification Skill	576	2.77	1.108	1.227
Access to Funding	576	1.19	0.395	0.156
Access to Markets	576	1.19	0.395	0.156
Access to Resources	576	1.20	0.397	0.158
Policy and Regulations	576	1.37	0.484	0.234
Valid N (listwise)	576			

Figure 4. Descriptive statistics

Where ***Y*** is the dependent variable: ***x1, x2 & xi. X*** is ***k*** independent variables: ***a*** and ***bi*** *represent* the regression coefficients, signifying the model's parameters concerning a given population, and ***u*** is the error term because of the effect of an unidentified predictor variable (s) or a random element within the relationship. Subsequently, a three-model hierarchical regression analysis was conducted to determine the statistical significance of the ES-EE relationship. The regression results are critical for understanding how ES, in configuration with EE, supports SMEs in producing TE. As a result, the study examined the adjusted R^2 values, their corresponding *p*-values, and F-values to assess the models' fitness. The adjusted R^2 values, which range from 0 to 1, further explain the variance in the EE variables due to the predictor variables. The closer the adjusted R^2 values are to one, the higher the variance of the predictor variables. In the regression, the adjusted R^2 values for the models, respectively, are access to finance (0.206; 0.474; 0.495); access to markets (0.206; 0.474; 0.495), access to resources (0.210; 0.494; 0.513), and policy and regulation (0.423; 0.354; 0.672). These statistics indicate that the 3 models can explain SME skills on the EE. However, Model 3 shows a fit with access to finance (50%), market access (50%), access to resources (51%), and policy and regulation (67%).

Furthermore, the *F*-value was used to determine whether the predictor variable is statistically significant for the EE variables, thereby evaluating the model's completeness. The statistics show that ES, alongside EE, is statistically significant, with ANOVA F-values at the 1% significance level ($p < 0.001$). Ethics skill ($p < 0.001$); Business skill ($p < 0.001$); Business strategy ($p < 0.001$); Financial skill ($p < 0.001$); Marketing skill ($p < 0.001$); Opportunity identification skill ($p < 0.001$). Models one and two did account for a significant amount of variance with *ANOVA F-values* of access to funding (50.825; 87.317), market access (50.825; 87.317), access to resources (51.954; 94.458), and policy and regulation (72.773; 51.735), which are all significant at 1% level ($p < 0.001$), affirmed by the *p-values* of the *F-statistic*. The final model included all six predictors and control variables. Overall, the final model accounted for over 0% of the variance with *ANOVA F-values* for access to funding (71.492), market access (71.492), access to resources (76.835), and policy and regulation (61.815), which are all significant at 1% level ($p < 0.001$), affirmed by the *p-values* of the *F-statistics*. As a result, the six predictors were significant to EE support factors, independent of one another ($p < 0.001$). For the control variables, the results show that SME profiles, such as gender and age, are significant at the 1% level ($p < 0.001$). These statistics suggest that Model Three can effectively explain SMEs' perspectives on the key support factors for EE, including access to funding (71%), market access (71%), access to resources (77%), and policy and regulation (62%). Figure 5 presents a summary of the multiple regression model, displaying the adjusted

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R^2 values, *p-values*, and *F-values*. Overall, the regression tables illustrate the statistical relationships among the ES and EE variables and the control variables included in the models. It further presents the statistical significance of ES in combination with EE factors, with a significant association indicated by ANOVA F-values at the 1% level ($p < 0.001$).

7.2 Hypothesis testing

Multiple regression analyses were performed to test H1, H2, H3, H4, H5, and H6. The results demonstrate a statistically significant positive relationship between SMEs' ES and EE factors. The expectation is that SMEs with requisite levels of ES, configured with adequate EE factors, and providing relevant support mechanisms will help SMEs develop and produce TE outcomes. As a result, the regression supports H1, with ANOVA F-values at the 1% significance level ($p = 0.000$). Thus, *H1* is supported: *Requisite business ethics skills, along with access to funding, market accessibility, resource availability, supportive policy, and regulations, help SMEs achieve TE*. The regression supports *H2*, as indicated by ANOVA

Access to Funding

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18.859	3	6.286	50.825	<0.001[b]
	Residual	70.750	572	0.124		
	Total	89.609	575			
2	Regression	42.956	6	7.159	87.317	<0.001[c]
	Residual	46.654	569	0.082		
	Total	89.609	575			
3	Regression	44.999	8	5.625	71.492	<0.001[d]
	Residual	44.610	567	0.079		
	Total	89.609	575			

a. Dependent Variable: AccesstoFunding
b. Predictors: (Constant), BusStrategySkill, EthicsSkill, BusSkill
c. Predictors: (Constant), BusStrategySkill, EthicsSkill, BusSkill, FinancialSkill, MarketingSkill, OpportunityIdentificationSkill
d. Predictors: (Constant), BusStrategySkill, EthicsSkill, BusSkill, FinancialSkill, MarketingSkill, OpportunityIdentificationSkill, Gender, AgeofSME

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics: R Square Change	F Change	df1	df2	Sig. F Change
1	0.459[a]	0.210	0.206	0.352	0.210	50.825	3	572	< 0.001
2	0.692[b]	0.479	0.474	0.286	0.269	97.962	3	569	< 0.001
3	0.709[c]	0.502	0.495	0.280	0.023	12.984	2	567	< 0.001

a. Predictors: (Constant), BusStrategySkill, EthicsSkill, BusSkill
b. Predictors: (Constant), BusStrategySkill, EthicsSkill, BusSkill, FinancialSkill, MarketingSkill, OpportunityIdentificationSkill
c. Predictors: (Constant), BusStrategySkill, EthicsSkill, BusSkill, FinancialSkill, MarketingSkill, OpportunityIdentificationSkill, Gender, AgeofSME

Access to Markets

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18.859	3	6.286	50.825	<0.001[b]
	Residual	70.750	572	0.124		
	Total	89.609	575			
2	Regression	42.956	6	7.159	87.317	<0.001[c]
	Residual	46.654	569	0.082		
	Total	89.609	575			
3	Regression	44.999	8	5.625	71.492	<0.001[d]
	Residual	44.610	567	0.079		
	Total	89.609	575			

a. Dependent Variable: AccesstoMarkets
b. Predictors: (Constant), BusStrategySkill, EthicsSkill, BusSkill
c. Predictors: (Constant), BusStrategySkill, EthicsSkill, BusSkill, FinancialSkill, MarketingSkill, OpportunityIdentificationSkill
d. Predictors: (Constant), BusStrategySkill, EthicsSkill, BusSkill, FinancialSkill, MarketingSkill, OpportunityIdentificationSkill, Gender, AgeofSME

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics: R Square Change	F Change	df1	df2	Sig. F Change
1	0.459[a]	0.210	0.206	0.352	0.210	50.825	3	572	< 0.001
2	0.692[b]	0.479	0.474	0.286	0.269	97.962	3	569	< 0.001
3	0.709[c]	0.502	0.495	0.280	0.023	12.984	2	567	< 0.001

a. Predictors: (Constant), BusStrategySkill, EthicsSkill, BusSkill
b. Predictors: (Constant), BusStrategySkill, EthicsSkill, BusSkill, FinancialSkill, MarketingSkill, OpportunityIdentificationSkill
c. Predictors: (Constant), BusStrategySkill, EthicsSkill, BusSkill, FinancialSkill, MarketingSkill, OpportunityIdentificationSkill, Gender, AgeofSME

Figure 5. Regression results

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Access to Resources

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19.450	3	6.483	51.954	<0.001[b]
	Residual	71.381	572	0.125		
	Total	90.832	575			
2	Regression	45.326	6	7.554	94.458	<0.001[c]
	Residual	45.506	569	0.080		
	Total	90.832	575			
3	Regression	47.248	8	5.906	76.835	<0.001[d]
	Residual	43.583	567	0.077		
	Total	90.832	575			

a. Dependent Variable: AccesstoResources
b. Predictors: (Constant), BusStrategySkill, EthicsSkill, BusSkill
c. Predictors: (Constant), BusStrategySkill, EthicsSkill, BusSkill, FinancialSkill, MarketingSkill, OpportunityIdentificationSkill
d. Predictors: (Constant), BusStrategySkill, EthicsSkill, BusSkill, FinancialSkill, MarketingSkill, OpportunityIdentificationSkill, Gender, AgeofSME

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.463[a]	0.214	0.210	0.353	0.214	51.954	3	572	< 0.001
2	0.706[b]	0.499	0.494	0.283	0.285	107.848	3	569	< 0.001
3	0.721[c]	0.520	0.513	0.277	0.021	12.505	2	567	< 0.001

a. Predictors: (Constant), BusStrategySkill, EthicsSkill, BusSkill
b. Predictors: (Constant), BusStrategySkill, EthicsSkill, BusSkill, FinancialSkill, MarketingSkill, OpportunityIdentificationSkill
c. Predictors: (Constant), BusStrategySkill, EthicsSkill, BusSkill, FinancialSkill, MarketingSkill, OpportunityIdentificationSkill, Gender, AgeofSME

Policy and Regulations

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.512	3	0.171	72.773	<0.001[b]
	Residual	134.236	572	0.235		
	Total	134.748	575			
2	Regression	6.127	6	1.021	51.735	<0.001[c]
	Residual	128.621	569	0.226		
	Total	134.748	575			
3	Regression	10.809	8	1.351	61.815	<0.001[d]
	Residual	123.939	567	0.219		
	Total	134.748	575			

a. Dependent Variable: PolicyandRegulations
b. Predictors: (Constant), BusStrategySkill, EthicsSkill, BusSkill
c. Predictors: (Constant), BusStrategySkill, EthicsSkill, BusSkill, FinancialSkill, MarketingSkill, OpportunityIdentificationSkill
d. Predictors: (Constant), BusStrategySkill, EthicsSkill, BusSkill, FinancialSkill, MarketingSkill, OpportunityIdentificationSkill, Gender, AgeofSME

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.062[a]	0.004	0.423	0.484	0.004	0.728	3	572	< 0.001
2	0.213[b]	0.045	0.354	0.475	0.042	8.279	3	569	< 0.001
3	0.283[c]	0.080	0.672	0.468	0.035	10.711	2	567	< 0.001

a. Predictors: (Constant), BusStrategySkill, EthicsSkill, BusSkill
b. Predictors: (Constant), BusStrategySkill, EthicsSkill, BusSkill, FinancialSkill, MarketingSkill, OpportunityIdentificationSkill
c. Predictors: (Constant), BusStrategySkill, EthicsSkill, BusSkill, FinancialSkill, MarketingSkill, OpportunityIdentificationSkill, Gender, AgeofSME

Figure 5. (*continued*)

F-values at the 1% significance level ($p = 0.000$). Thus, *H2* is supported: *Requisite business management skills, along with access to funding, market accessibility, resource availability, supportive policy, and regulations, help SMEs achieve TE*. The regression supports *H3* with *ANOVA F-values* at a 1% significance level ($p = 0.000$). Thus, *H3* is supported: *Requisite business strategy skills, along with access to funding, market accessibility, resource availability, supportive policy, and regulations, help SMEs achieve TE*. The regression supports *H4* with *ANOVA F-values* at a 1% significance level ($p = 0.000$). Thus, *H4* is supported: *Requisite financial skills, along with access to funding, market accessibility, resource availability, supportive policy, and regulations, help SMEs achieve TE*. The regression supports *H5* with *ANOVA F-values* at a 1% significance level ($p = 0.000$). Thus, *H5* is supported: *Requisite marketing skills, along with access to funding, market accessibility, resource availability, supportive policy, and regulations, help SMEs achieve TE*. The regression supports *H6* with *ANOVA F-values* at a 1% significance level ($p = 0.000$). Thus,

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H6 is supported: *Requisite skills in opportunity identification, along with access to funding, market accessibility, resource availability, supportive policies, and regulations, help SMEs achieve TE*. The hypotheses imply that SMEs with requisite ES, in combination with adequate EE, can impact systemic development to support TE outcomes and domestic and national development in emerging economies. Figure 6 below presents the regression results for the conceptual framework, and Figure 7 displays the correlation matrix.

8. Discussion

The literature has examined technology (Marmer, 2012), funding (Schoar, 2010), market imperfection (Egere *et al.*, 2022), and stakeholders' support (Maas *et al.*, 2019) as a strategy in which SMEs could develop the capacity and resilience to become sustainable (Ratten and Jones, 2018). This would help address the shortage of socio-economic benefits and long-term societal development (Agyapong and Boohene, 2020). The interpretation of the findings reveals that the Nigerian EE has structural and institutional characteristics that differentiate it from other emerging economies, including those in Latin America and Southeast Asia (Barrera-Verdugo *et al.*, 2025; Warnecke, 2025). These contextual distinctions significantly shape ES and EE support and TE aspirations among SMEs. The findings suggest that SMEs with requisite ES, in conjunction with adequate EE (Inyang and Enuoh, 2009; Fate, 2016), would help improve resilience, which has been limited domestically, nationally, and regionally, to support sustainable jobs and address rising poverty levels among its citizens. In emerging economies, where most EE weaknesses are sector-specific, Nigeria is characterised by system-wide challenges in finance, infrastructure, regulatory effectiveness, and market

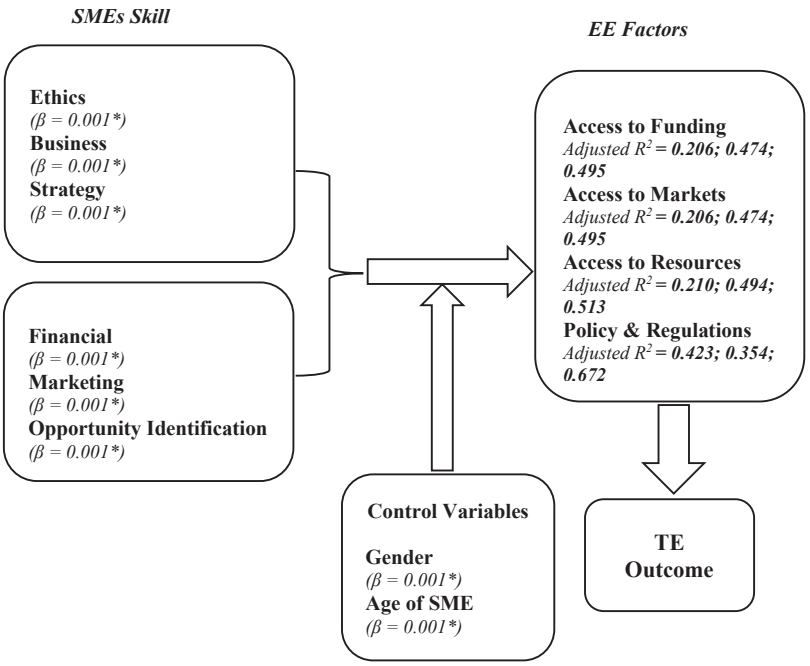


Figure 6. Conceptual framework explained

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Correlations Matrix													
		Gender	AgeofSME	EthicsSkill	BusMgtSkill	FinancialMgtSkill	MarketingMgtSkill	OpportunityIdentification	BusStrategySkill	AccesstoFunding	AccesstoMarkets	AccesstoResources	PolicyandRegulations
Gender	Pearson Correlation	--											
	N	576											
Age of SME	Pearson Correlation	0.001**	--										
	Sig. (2-tailed)	< 0.001											
	N	576	576										
Ethics Skill	Pearson Correlation	0.001**	0.001**	--									
	Sig. (2-tailed)	< 0.001	< 0.001										
	N	576	576	576									
Bus Mgt Skill	Pearson Correlation	0.001**	0.001**	0.001**	--								
	Sig. (2-tailed)	< 0.001	< 0.001	< 0.001									
	N	576	576	576	576								
Financial Mgt Skill	Pearson Correlation	0.001**	0.001**	0.001**	0.001**	--							
	Sig. (2-tailed)	< 0.001	< 0.001	< 0.001	< 0.001								
	N	576	576	576	576	576							
Marketing Mgt Skill	Pearson Correlation	0.001**	0.001**	0.001**	0.001**	0.001**	--						
	Sig. (2-tailed)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001							
	N	576	576	576	576	576	576						
	Pearson Correlation	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	--					

Figure 7. Correlation matrix

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Opportunity Identification	Sig. (2-tailed)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001						
	N	576	576	576	576	576	576	576					
Bus Strategy Skill	Pearson Correlation	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	--				
	Sig. (2-tailed)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001					
	N	576	576	576	576	576	576	576	576				
Access to Funding	Pearson Correlation	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	--			
	Sig. (2-tailed)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001				
	N	576	576	576	576	576	576	576	576	576			
Access to Markets	Pearson Correlation	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	--		
	Sig. (2-tailed)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001			
	N	576	576	576	576	576	576	576	576	576	576		
Access to Resources	Pearson Correlation	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	--	
	Sig. (2-tailed)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001		
	N	576	576	576	576	576	576	576	576	576	576	576	
Policy and Regulations	Pearson Correlation	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	--
	Sig. (2-tailed)	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	
	N	576	576	576	576	576	576	576	576	576	576	576	576

**. Correlation is significant at the 0.01 level (2-tailed).

Figure 7. (*continued*)

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functionality. The study's findings show that SMEs face persistent challenges in accessing funding, market opportunities, and essential business resources, while also contending with fragmented and inconsistently implemented policies. This multi-dimensional barrier structure distinguishes Nigeria from countries such as Kenya or Ghana, where targeted policies or industry-specific hubs (e.g. Fintech clusters in Nairobi or Agritech clusters in Accra) mitigate some EE weaknesses.

The firm-level analysis in this study draws on the literature on the importance of ES and EE for SMEs. Previous studies have shown that firm-level capabilities, particularly in areas such as strategic management, financial literacy, and market orientation, are key to the success of SMEs (Inyang and Enuoh, 2009; Egere *et al.*, 2022). The findings reflect the challenges noted in the literature regarding the fragmentation and limitations of the EE in emerging economies (Igwe *et al.*, 2018; Maas *et al.*, 2019). In Nigeria, limited access to finance, resources, and markets poses significant challenges for SMEs. The firm-level focus of this study allows for a better understanding of how SMEs, as individual units, experience the interactions between ES and EE conditions. The data indicate that SMEs with higher levels of business management and marketing skills are better positioned to access and benefit from EE support, such as funding and market opportunities. This is consistent with the literature, which highlights the role of managerial and marketing capabilities in improving business performance (Smith and Chimucheka, 2014; De Sordi *et al.*, 2024). However, the study also underscores a critical gap in the literature: the need for a more holistic and context-specific approach to supporting SMEs in emerging economies. While much of the literature focuses on the broader macroeconomic conditions of the EE, this study emphasises that firm-level capabilities (ES) are equally essential to SMEs to effectively engage with these macro-level EE conditions (Ratten and Jones, 2018; Egere *et al.*, 2025). The findings suggest that EE support alone is insufficient if SMEs lack the requisite ES.

Indeed, the evidence in this study suggests that Nigerian SMEs lack the requisite ES (Inyang and Enuoh, 2009; Igwe *et al.*, 2018), and the EE is inadequate in supporting SMEs (Egere *et al.*, 2022). Moreover, the existing literature indicates that SMEs in most developing nations with economic conditions like those in Nigeria often have inadequate access to ES development programs and poor EE support for businesses (Inyang and Enuoh, 2009; Fate, 2016). The study's findings reveal that SMEs have a limited understanding of the ethical principles that guide business ventures, thereby hindering enterprise development. Moreover, Nigerian SMEs lacked business management expertise and relied on managers or less competent family members. In that, crucial decisions are taken irrespective of their management skills. They fail to implement critical long-term strategies and goals for the business, affecting the SMEs' long-term development needs. Another important finding from the current study is the shortage of financial management skills among Nigerian SMEs (Inyang and Enuoh, 2009). This has led to limited knowledge of financial management practices, such as anticipating, acquiring, and allocating financial resources to support sustainability. The study reveals that the entrepreneurial culture in Nigeria is heavily shaped by necessity-based motivations, unlike in several Asian and Latin American contexts, where opportunity entrepreneurship is more prevalent. The evidence that large proportions of Nigerian SMEs operate with limited strategy, weak financial management, and a low focus on market innovation suggests that entrepreneurial activity is often a survival mechanism rather than a growth-driven one. This contrasts with emerging economies like India, where entrepreneurship has, over time, shifted from necessity-led to innovation-led through industrial policy reforms, export-oriented development, and investment in human capital (Chaudhary and Minz, 2025). The evidence further reveals that Nigerian SMEs require assistance in accessing funding for market expansion, innovation, and new product development. Despite numerous financial sources, businesses face a significant funding gap for development (Fate, 2016; Godwin and Simon, 2021). Moreover, commercial credit accounts for only around 13% of Nigerian SMEs' funding requirements, which is concerning (Fate, 2016; Egere *et al.*, 2022). Thus, SMEs often rely on unconventional or unregulated

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credit institutions, as well as family and friends, for funding. It was discovered that these alternative sources require unfeasible terms and impractical collateral, which limit SME development, and that they also display and preserve values that encourage activities and behaviours hostile to the systematic build-up of capital.

The evidence found a lack of appropriate marketing management skills among Nigerian SMEs. Notably, many SMEs rarely engage in innovative product marketing and rely heavily on traditional practices. Most SMEs lacked expertise in market analysis to identify opportunities, and they seldom developed novel products to create niche markets. Instead, they focus on replicating and recycling products. Furthermore, the findings reveal that Nigerian SMEs face myriad challenges in accessing markets due to a shortage of critical infrastructures, such as roads and transportation systems (Isiaka, 2022). The developing market situation is negatively affecting SME development. Moreover, considering Nigeria's resource wealth, SMEs struggle to access essential resources, including reliable electricity, transport networks, and market data, which are less evident in countries such as South Africa and India, where infrastructure deficits exist but are mitigated by stronger regional support structures, efficient logistics corridors, and public data systems. The findings also reveal a poor data management infrastructure, making it challenging for SMEs in developing countries to access business and market data that supports their development. Furthermore, there is a failure to conduct sufficient risk appraisal and business analysis to support informed strategic decision-making, including analysis of consumer propensity. In this regard, Nigerian SMEs lack access to relevant data that supports their business competitiveness. Moreover, supply chain networks for SMEs remain limited, and, where available, are often marred by corruption (Igwe *et al.*, 2018). The institutional and bureaucratic challenges documented in this study diverge from patterns observed in other regions. Although bureaucracy is common in developing economies, Nigeria's situation is marked by regulatory overlap, including the duplicative roles of NAFDAC, SON, and other agencies, which impose avoidable administrative burdens on SMEs and hinder scalability. In contrast, countries such as South Africa have streamlined compliance procedures and are supporting SMEs to be more productive (Simba *et al.*, 2024). The findings highlight that stakeholders and support agencies, such as SMEDAN, do not adequately provide SMEs with relevant tools and resources to support their development. As the chief policy and regulatory entity, the government also establishes and implements business policies to govern, regulate, and support entrepreneurial activities through institutions such as the Bank of Industry (BoI), the Central Bank of Nigeria (CBN), and SMEDAN. Moreover, several agencies responsible for policy implementation and regulatory oversight lack the capability, funds, and resources to be effective (Agwu and Emeti, 2014; Egere *et al.*, 2022). Furthermore, national and cross-regional programme implementation occasionally outstrips their limited budget and resources. Where policies and regulations are available, ineffective implementations often limit their support to SMEs. Several factors, including institutionalised bureaucracy and corruption, contributed to a weak policy and regulatory framework. The evidence in this study provides an enhanced understanding of ES and EE, as well as their impact on small business development. The Nigerian EE reveals weak linkages among the triple-helix actors (Government, Industry, and Academia). While many emerging economies now leverage these partnerships to build ES and help SMEs development, the Nigerian innovation landscape remains heavily fragmented. As reflected in the study's findings, SMEs rarely access structured training, mentoring, or business support services due to limited institutional coordination and low awareness among entrepreneurs. Corruption and unstable macroeconomic conditions, such as fluctuating exchange rates and inflationary pressures, further distinguish Nigeria. These systemic uncertainties weaken long-term strategy and increase operational risks for SMEs, which directly undermines TE outcomes. Collectively, these contextual factors highlight why the relationship between ES, EE, and TE outcomes in Nigeria may differ from conventional theoretical expectations derived from other emerging economies.

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Furthermore, the entrepreneurial culture in Nigeria is largely necessity-driven, shaped by strong informal institutions, chronic unemployment, limited absorption into the formal sector, and the perceived social prestige associated with salaried work. This cultural disposition often positions entrepreneurship not as a deliberate strategic path but as a fallback option. The study's findings show that many SMEs lack strategy, financial literacy, and market-innovation capabilities, reflecting a culture in which business creation is often reactive rather than opportunity-led. Unlike emerging economies such as Malaysia, where entrepreneurial culture has been progressively oriented toward innovation, opportunity exploitation, and value creation, Nigeria's culture tends to prioritise short-term survival, quick turnover, and risk aversion. This limits SMEs' willingness to adopt formal business practices, invest in skill development, or pursue long-term growth trajectories associated with TE. As a result, ES, particularly strategic, financial, and opportunity-identification skills, remain underdeveloped even when entrepreneurs possess them. Additionally, the cultural emphasis on individual resilience and self-reliance, rather than EE collaboration, influences entrepreneurial behaviour. Entrepreneurs often operate in silos, with limited participation in formal business associations or knowledge-sharing networks. This reduces collective capacity-building and weakens critical systemic linkages for TE outcomes. Other emerging ecosystems, such as those in Asia, have made progress in fostering collaborative entrepreneurial cultures through clusters, hubs, and association-led capacity-building platforms, enabling stronger diffusion of ES (Chaudhary and Minz, 2025).

In summary, the interplay between entrepreneurial culture and informal networks in Nigeria shapes how ES are developed, mobilised, and transformed into business outcomes. While these cultural dynamics provide resilience in the face of weak institutional support, they simultaneously inhibit the professionalisation, scalability, and formal access to resources needed for the systemic development of SMEs and TE. Recognising these cultural and informal influences is therefore essential for designing context-sensitive EE reforms that can enhance the potential of Nigeria's SMEs. Overall, the firm-level analysis of 576 Nigerian SMEs provides valuable insights into how ES and EE correlate to support TE. By focusing on the firm as the unit of analysis, this study emphasises the importance of enhancing individual SMEs' capabilities, particularly in managing resources, finances, and markets. The findings contribute to the literature by showing that firm-level capabilities are just as essential as the broader EE factors in driving TE. Policymakers and practitioners can use these insights to design more effective support that targets ES development and EE improvement, ensuring that SMEs are equipped to contribute to long-term economic and societal growth.

9. Conclusion and contribution of research

This research has explored the critical roles of ES and EE in supporting SMEs in achieving TE outcomes in Nigeria, a key emerging economy in Sub-Saharan Africa. By integrating ES and EE, the study proposes a holistic framework for understanding how these factors contribute to SMEs' ability to foster innovation, growth, and socio-economic impact. As Marmer (2012) suggested, TE is not merely an isolated concept, but a socio-economic value system capable of generating both economic benefits and long-term societal impact. This view has been central to the development of the framework employed in this study. The findings underscore the importance of enhancing both ES and EE's supportive infrastructure to enable SMEs to move beyond subsistence-level activities and become high-growth, socially impactful enterprises. This aligns with Marmer's (2012) finding of a correlation between ES and EE in achieving TE outcomes. Considering this, the study contributes to the existing body of knowledge by extending Marmer's (2012) TE theory to the Nigerian context, emphasising the need for balanced development of ES and EE to help sustainable entrepreneurship. These findings provide essential policy implications for helping systemic SME development, which can significantly contribute to Nigeria's economic diversification and broader socio-economic

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growth. It further offers valuable implications for other Global South economies with similar developmental contexts.

9.1 Implications of the study

This research has explored the pivotal role of ES and the EE in facilitating TE among SMEs in Nigeria. By examining the symbiotic relationship between ES and EE, this study has developed a comprehensive framework for understanding how these factors interact to enable SMEs to transition from subsistence to growth-oriented enterprises. Considering Marmer's (2012), this study reaffirms that TE is a socio-economic value system capable of creating long-term societal and economic impact. The findings suggest that Nigerian SMEs, with limited ES and an underdeveloped EE, face substantial challenges in realising TE outcomes. However, integrating ES development with a supportive EE offers a pathway to overcoming these challenges, providing SMEs with the tools needed to drive innovation, boost productivity, and deliver socio-economic benefits. Beyond the Nigerian context, the insights from this study can inform other emerging economies with similar socio-economic and institutional challenges. Specifically, countries in Sub-Saharan Africa and other regions facing infrastructure deficits, limited access to financing, and weak institutional support can draw from this framework to identify critical interventions that enhance both entrepreneurial skills and ecosystem support. For instance, the study's findings suggest that fostering robust entrepreneurial skills, particularly in financial management and strategic planning, is essential for SMEs to thrive, with implications for other developing economies where such gaps persist. Moreover, this study is unique in its dual focus on ES and EE, combining both elements into a holistic framework that provides a more nuanced understanding of how SMEs can achieve TE outcomes.

Unlike previous research that treated ES and EE separately, this study adopts a more integrated approach, demonstrating the importance of both elements in shaping SME success in emerging economies. The findings emphasise the importance of context-sensitive interventions, acknowledging that the challenges faced by Nigerian SMEs, such as inadequate infrastructure, limited market access, and inconsistent regulatory frameworks, require tailored solutions that other developing economies may also encounter. Overall, the study not only contributes to the theoretical understanding of TE in Nigeria but also offers valuable insights applicable to other emerging economies. Policymakers, practitioners, and researchers can use these findings to develop strategies that enhance SMEs' entrepreneurial capacity, foster a more supportive EE, and ultimately drive socio-economic development in economies facing similar challenges.

9.2 Future research opportunities

For entrepreneurial scholars, this study opens several pathways for future research. While the study contributes significantly to the literature on TE. Several underexplored areas remain that could further enrich the understanding of SME development in emerging economies. Scholars can explore how the ES-EE framework can be applied in other national contexts with distinct economic and cultural landscapes, thereby testing the universality of this approach across diverse settings. Further research could focus on identifying specific ES gaps and EE ineffectiveness that limit TE in particular industries (e.g. manufacturing, technology) across different regions. Additionally, longitudinal studies tracking SME development and the evolution of their ES and EE characteristics could provide valuable insights into the long-term impacts of ES and EE interventions. For SMEs and entrepreneurs, the future holds practical implications. The findings of this study emphasise the importance of ES acquisition and EE support. Entrepreneurs must be proactive in developing key ES, particularly in financial management, strategic planning, and market innovation. Furthermore, entrepreneurs should engage with their EE to identify available resources and to understand how to navigate regulatory and policy challenges in order to build more sustainable businesses. For SME

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owners, this research encourages a shift from subsistence-based to TE, where innovation, growth, and societal impact are prioritised.

In practical terms, future interventions should focus on creating platforms that enable SME owners to access relevant training and development programs to build critical skills. Governments and policymakers should recognise the correlation between ES and EE and implement policies that support entrepreneurial education and create an enabling environment for business development. Moreover, entrepreneurs should look beyond their immediate networks and leverage opportunities within the EE, including collaboration with industries, financial institutions, and Universities. The findings suggest that building these connections can enhance their access to capital, markets, and the tools necessary to scale their businesses and achieve TE outcomes. While the study provides a comprehensive understanding of the roles of ES and EE in driving TE, its findings also emphasise the need for practical, context-sensitive approaches to empower both entrepreneurial scholars and practitioners. By focusing on the co-creation of ES and EE, this research lays the foundation for advancing sustainable, high-impact entrepreneurship across emerging economies.

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