

Strategic Agility and SME Performance for Sustainable Development: The Mediating Role of Technological Innovation

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Abstract- Firms globally encounter challenges in maintaining superior business performance over the long term. Most business managers in today's modern age find it difficult to constantly achieve targeted performance due to poor strategic insight and agility in managing uncertainty. This study examines how strategic agility, technological innovation, and the performance of Small and Medium-sized Enterprises (SMEs) in Kwara State are interconnected. Employing a quantitative research approach, the study systematically collected numerical data to analyze the relationships between strategic agility, technological innovation, and SME performance. The results confirm that strategic response and collective capabilities lead to better SME performance, as reflected in high-quality product, service, and market-oriented strategies. Importantly, technological innovation acts as a critical mediator in the relationship between strategic agility and SME performance, reinforcing their interdependence. Based on these insights, the study recommends that SMEs integrate innovative technological processes, optimize resource allocation, and strengthen collective capabilities to convert agile strategies into sustainable superior performance in dynamic business environments. The study further recommends prioritizing strategic response and collective capability through innovation-driven strategies to advance sustainable economic growth in developing economies such as Nigeria, thereby supporting the achievement of the Sustainable Development Goals.

Index Terms- Strategic Agility, Strategic Response, Sustainable Development Goals, SME Performance, Technological Innovation.

I. INTRODUCTION

In today's rapidly evolving and uncertain business environment, the ability of small and medium enterprises (SMEs) to adapt and thrive is critical for their long-term viability. The ongoing economic crisis in Nigeria further

underscores the necessity of strategic agility in enabling SMEs to effectively navigate disruptions and economic challenges (Ogbeta-Ogwu & Chidi, 2025). According to Zaušková and Rezníčková (2020), SMEs play a pivotal role in the economy, contributing significantly to national income and employment generation, as formal SMEs alone account for up to 55% of GDP in emerging economies. With the global workforce expanding, fostering SME growth has become a priority for governments worldwide. Strategic agility refers to an organization's capability to swiftly detect and respond to changes in the business environment. It involves proactive identification and exploitation of new opportunities while managing risks and uncertainties. This agility entails making strategic decisions, reallocating resources, and adapting business models to maintain competitiveness and achieve sustainable growth. For SMEs, strategic agility is particularly crucial, as they operate in dynamic and highly competitive markets, often with limited resources and capabilities (Vaillant & Lafuente, 2019).

In Nigeria, SMEs have proven their economic significance, contributing about 48% of national GDP and a significant share of industrial jobs and manufacturing output (ILO, 2019). Despite their contributions, SMEs face numerous challenges in a highly competitive and rapidly evolving business environment. The volatility, uncertainty, complexity, and ambiguity of the business environment demand that SMEs continuously innovate and develop strategic agility to maintain performance. According to Zaušková and Rezníčková (2020), SMEs are essential for the survival of many economies worldwide, significantly contributing to GDP and employment generation while playing critical roles in both the service and production sectors. The National Bureau of Statistics (2020) reports

that SMEs in Nigeria have contributed approximately 48% of national GDP over the past five years, with around 17.4 million SMEs accounting for about 50% of industrial jobs and nearly 90% of the manufacturing sector by number of enterprises. Despite these substantial contributions, SMEs face serious challenges and operate in a highly competitive environment that demands continuous innovation and the development of strategic agility (Vaillant & Lafuente, 2019; Peter et al., 2018). This raises the question of the extent to which strategic agility influences SME performance.

The ability to innovate technologically, particularly by leveraging technology, is critical for SMEs seeking to demonstrate strategic agility. Innovation entails creating and implementing new ideas, processes, products, or services to provide value and meet market demands. Adopting AI and social media helps SMEs differentiate themselves from competitors, improve customer satisfaction, and seize new opportunities. Previous research has shown that adopting innovative technologies is critical for creating value and boosting SME performance (Garzoni et al., 2020). This raises a second question: does technological innovation actually mediate the relationship between strategic agility and SME performance?

The emphasis on strategic sensitivity, response capabilities, and collective capabilities highlights the importance of employing innovative technologies to strengthen strategic agility (Bruque & Moyano, 2007; Terziovski, 2010). This study therefore aims to assess how strategic agility influences SME performance in Kwara State, with particular focus on the mediating influence of technological innovation, especially AI and social media.

Research Questions

1. To what extent does strategic agility (SA) influence SME performance (SMP)?
2. Does technological innovation (TI) mediate the relationship between strategic agility and SME performance (SMP)?

II. LITERATURE REVIEW

A. Strategic Agility

Strategic agility, according to Weber and Tarba (2014), is the capacity of management to consistently and swiftly perceive changes in the environment, purposefully execute

strategic actions, and subsequently modify the organizational structure required for effective implementation. In essence, it signifies the capability to continually adapt to evolving circumstances, regularly refine institutional strategic direction, and innovate novel approaches for value creation (Junni et al., 2015). Sampath (2015) considers strategic agility as the ability to adapt to changes in the business context it means identifying opportunities, threats, and risks, and swiftly launching new strategic initiatives repeatedly. Teece et al. (2016) characterize strategic agility as an organization's ability to efficiently and effectively reallocate and refocus resources toward value-creating activities and higher-yield opportunities, adapting to internal and external circumstances as necessary. Kumkale (2016) asserts that strategic agility serves as a tool for gaining competitive advantage. Jacoby and Shaw (2021) define agility as the capacity to respond promptly, efficiently, and effectively to a broad spectrum of unpredictable demands, extending beyond attributes such as strength, speed, or endurance to encompass the ability to deploy such competencies individually or in combination while minimizing wasted time or energy.

Arokodare (2020) describes strategic agility as an organization's ability to detect changes in dynamic, fast-paced environments and respond quickly by seizing market opportunities while maintaining competitive operational performance through building, combining, enhancing, mobilizing, and reconfiguring capabilities. This allows an organization to achieve and sustain superior operational performance relative to competitors. Strategic agility enables businesses to adapt to rapidly changing conditions through strategic sensitivity, clarity of vision, rapid resource deployment, judicious selection of strategic goals, and shared responsibility. According to Michael et al. (2023), strategic agility is the ability to recognize opportunities and threats in the environment and categorize them as favourable or unfavourable. Sampath and Krishnamoorthy (2017) view strategic agility as a meta-capability related to the assignment of appropriate resources to enhance distinctive competencies across organizational functions while maintaining a balance of competencies over time. Doz (2020) emphasized that strategic agility helps organizations avoid "rigidity traps" and over-focus on external embeddedness by moving swiftly to prevent organizational decline and orient toward operational flexibility. Doz and Kosonen (2008) described

strategic agility as a vital capability that organizations employ to formulate and modify business models to become more interactive. Ebrahimpour et al. (2012) identified agility capabilities as including flexibility, rapidity, reactivity, and proficiency: flexibility being the ability to produce a variety of items while achieving varied goals with the same equipment and resources (spanning product volume, product diversity, organisational, and individual flexibility), and rapidity being the ability to perform tasks swiftly — introducing new items, delivering products on schedule, reducing operating time, developing prototypes quickly, and rapidly executing R&D tasks.

B. Strategic Sensitivity

Strategic sensitivity, as defined by Diete-Spiff and Nwuche (2021), refers to an enterprise's capacity to recognize, detect, observe, and comprehend the factors driving change within the business environment. Rohrbeck et al. (2015) additionally define it as the extent of awareness, perceptiveness, and vigilance concerning environmental conditions — a capability essential for transitioning from a proactive, forward-looking strategic approach to an insight-driven sensitivity grounded in present circumstances rather than solely on future anticipation (Doz, 2020). Acquier and Dalmasso (2013) emphasize the significance of strategic sensitivity for risk mitigation, ensuring that agile strategies can be sustained effectively from within the organization. Properly nourished and applied, resource sensitivity contributes greatly to an organisation's long-term operational performance. Strategic sensitivity encompasses sensing and detecting competitive market opportunities, evolving situations, and environmental changes, with reactions expected to be quick, incorporate surprise, and be implemented efficiently. Organizations must develop information systems capable of identifying significant trends, events, competitors, markets, and technological advancements (Omran & Lecerf, 2020); the frequency and filtering of such sensing depend on the degree of environmental dynamism (North & Varvakis, 2018). An agile organisation thus benefits from strategic sensitivity by perceiving environmental change, accurately foreseeing trends, adapting to business pressure through internal and external perspectives, and proactively driving the market. According to Toivonen and Viitanen (2016), strategic sensitivity fosters greater organizational responsiveness to customer tastes and preferences, as close client ties allow

the organisation to gather information on customer preferences.

Kettunen, as cited in Muhammad et al. (2020), identified four pillars of strategic sensitivity: (1) Open Strategy Operations, comprising strategic collaboration with multiple contributors and shared scientific experience among organisation members; (2) Emphasis on Strategic Alertness, involving vision flexibility, contradictory aims, and openness to future vision; (3) High-Quality Internal Dialogue, comprising conceptual enrichment of reality and cognitive variety; and (4) Emphasis on Strategic Vigilance, comprising vision flexibility, contradictory aims, and openness to future vision. Turbulence is now a permanent feature of the business environment, and any effort to ignore it will prove disastrous; the only viable path is to embrace the opportunities within a turbulent environment to build an agile organisation, since most organizations still base their economic activities on an assumption of ongoing stability that no longer holds (Implement Group, 2012).

C. Strategic Response

Strategic response can be defined as a firm's ability to identify opportunities and threats and move ahead — proactively or reactively — with stability and strength. It is the ability of a firm to respond to events in its business environment that influence overall organizational performance (Muchiri et al., 2017; Imalingat, 2015). Strategic response is therefore associated with an organisation's ability to proactively initiate, restore, and redesign actions flexibly in response to sudden change, integrating and developing internal and external response capabilities and continuously reconfiguring them to accommodate market dynamism and a changing macro-environment in pursuit of superior performance. Mohammed (2014) similarly posits that a firm's ability to respond to events in its business environment shapes its overall organizational performance. This capacity to harmonize, cultivate, and adapt internal and external response capabilities unique to the organization must be continually reconfigured to align with market dynamics and the evolving macro-environment, ultimately aiming for superior performance (Laaksonen & Peltoniemi, 2016; Wang et al., 2020), implying a necessity for both direct and indirect interaction between dynamic response capabilities and the firm's competitive standing (Bartocci, 2019; Breznik & Lahovnik, 2016). Internal and external response capabilities, as considered in this study, are therefore

dynamic capability elements that explain how SMEs can achieve superior performance.

D. Collective Capability

Collective capability involves a firm's ability to collaborate as a team to establish a defensive position within a fiercely competitive environment. Doz and Kosonen (2008) argued that collective capabilities represent an organization's capacity to effectively integrate resources such as infrastructure, information, employees, and partners to leverage competitive advantage. Turulja and Bajgoric (2016) contended that abilities exercised by a group or team can significantly enhance organizational performance, while Rohrbeck and Kum (2018) posit that collective capabilities play a crucial role in bolstering a company's profitability and competitive advantage. Al-Qudah (2018) conceptualizes collective capabilities as an organization's ability to harness resources for competitive advantage, and Arokodare et al. (2020) assert a direct correlation between superior capabilities and collective capabilities, which are used to create cost leadership, competitive pricing, market share, and profitability. Johannisson (2017), investigating entrepreneurship within networks, notes that entrepreneurs in owner-managed enterprises must complement internal resources to adapt to increasingly volatile surroundings.

The quality of knowledge exchange across an organization's employees influences a firm's ability to convert innovative, proactive, and risk-taking behaviour into performance advantage. Entrepreneurial orientation refers to a company's innovative, proactive, and risk-taking behaviour, as well as its internal collective capability (Anderson et al., 2015; Cho & Lee, 2018; Lumpkin & Dess, 1996; Miller, 2011; Wales, 2016); internal collaboration and knowledge exchange across functional boundaries thus boost organizational innovativeness. While most entrepreneurship scholars have tended to overlook collectivism in favour of a stereotypical heroic, lone entrepreneur (BenHafaedh, 2017), studying entrepreneurship from a collective, team-based perspective is important for constructing a more complete entrepreneurship framework.

E. Innovation

Changes in the business environment and heightened competition have compelled organisations to improve performance to acquire sustainable competitive advantage

by keeping pace with change and expanding innovative capabilities to meet customer requirements. The paradigm shift toward digital technologies demands that businesses constantly increase the effectiveness of current business models while simultaneously developing radically new solutions to deal with new market entrants (Li, 2020; Adegboyegun et al., 2020). According to Ferreira et al. (2020), innovation demands both a collection of inventive skills and the willingness to put creative ideas into effect; Ganguly et al. (2020) similarly note that innovation capabilities are the ability to gather and manage resources to produce distinctive goods and services.

Product innovation capability and process innovation capability are commonly used to measure the form of innovation (Aas & Breuning, 2017; Lei et al., 2019; Migdadi, 2020). Product innovation capability is an organisation's ability to develop tangible and intangible resources, helping companies create new goods and services that fulfil customer needs (Aljanabi, 2020), while process innovation refers to the ability to transform how firms deliver their services by generating new inputs or processes within production or organisational operations, including information flow, resources, requirements, and tasks, to deliver the best quality at the lowest cost (Migdadi, 2020).

Adopting strategic agility can aid firms' innovative efforts. Farhana and Swietlicki (2020) argue that strategic agility helps firms offer value to consumers by exploring untapped market prospects that meet client needs. Kohtamäki et al. (2020) define strategic agility in innovation as proactive idea generation, value-based product development, and market-oriented product marketing; product and process innovation are positively related to strategic agility as measures of innovation capability, mediating the link between innovation capability and organizational resilience. Cai et al. (2019) assert that innovation competency requires sufficient resource flexibility to support new product development, while Brand et al. (2019) found that strategic agility helps firms build creative business models through restructuring, strengthened cooperation styles, and minimised internal policy challenges and organisational disputes. According to Jian and Moreno (2015), innovation is a condition of change and creative skill enabling the creation of goods and services that fill latent gaps in consumer needs, requiring knowledge that accounts not only for customer needs and

market gaps but also for underlying cultural and societal values. The pursuit of relevance in a global and dynamic business arena makes innovation and R&D a germane concept in SME performance (Gupta et al., 2019; Abidemi et al., 2018).

F. Technological Innovation

Technological innovation is a multifaceted process encompassing the development and application of new technologies to improve products, services, and processes. It is a key driver of progress with long-term impacts on the economy, society, and environment (Zaušková & Rezníčková, 2020), involving the application of scientific knowledge and technical skills to solve problems, meet emerging needs, and enhance the efficiency and effectiveness of existing systems. Technological innovation thus drives economic growth, enhances productivity, and improves quality of life. It is characterized by both incremental and radical innovations, broad application, and enhancement of capabilities (Raghuvanshi & Garg, 2018).

G. Artificial Intelligence

Artificial intelligence (AI) is a transformative technology that simulates human intelligence to perform tasks autonomously and intelligently. It refers to the simulation of human intelligence processes by machines, especially computer systems, encompassing learning the acquisition of information and rules for using it which is reasoning, and self-correction, with the aim of creating systems that can function autonomously and intelligently (Kumar et al., 2020). AI encompasses machine learning, deep learning, natural language processing, computer vision, and robotics, with wide-ranging applications across industries. According to Gerner (2020), AI offers numerous benefits in efficiency, accuracy, and scalability, contributing significantly to advancements in automation, product and service innovation, economic growth, and quality of life. It affords SMEs the opportunity to leverage advanced algorithms and computing power to transform industries, create new markets, and drive continuous progress across their domains.

H. Technological Innovation and SME Performance

The process of technological innovation that gave rise to AI and social media enhances SMEs' ability to manage business activities effectively — marketing, strategy formulation, operational efficiency, customer engagement,

e-commerce sales, data-driven decision-making, communication, collaboration, and access to global markets thereby enhancing business performance. According to Masood and Sonntag (2020), adopting technological innovation components can help SMEs improve financial performance, overall cost, and efficiency. Moreover, technological innovation can help SME employees work from home while maintaining high efficiency and overall performance (Nagalakshi & Kumar, 2020). Malhotra (2020) similarly posited that technological innovation can give SMEs a good knowledge of market demand and sales, improving turnover. Recent literature highlights the effectiveness of AI in enhancing social media marketing campaigns, now integral to contemporary marketing practice (Olbrich et al., 2019; Basri, 2020), with AI's role in optimizing marketing strategies particularly emphasized in studies of SMEs in the Saudi Arabian context.

I. Artificial Intelligence and SME Performance

While AI offers SMEs numerous benefits in efficiency, accuracy, and scalability, it also functions as a crucial and dynamic component of technological innovation, contributing significantly to advancements in automation, product and service innovation, economic growth, and quality of life, and affording SMEs the opportunity to leverage advanced algorithms and computing power to transform industries and drive continuous progress. Process innovation — the implementation of a new or significantly improved production or delivery method — occurs through improvement of production processes or modification of technologies. Process innovation makes an organization more innovative than others through networks that facilitate access to new markets, new knowledge, and risk-sharing (Pittaway et al., 2004; Adner & Feiler, 2019).

J. Strategic Agility and SME Performance

Strategic agility enables organizations to continually and effectively adjust and adapt in a timely manner in alignment with strategic goals, leading to enhanced overall firm performance (Weber & Tarba, 2014). In the contemporary business landscape, strategic agility promotes ongoing performance improvement and timely adaptation to a dynamic environment (Ofoegbu & Akanbi, 2012); organizational performance hinges on the ability to measure and employ strategic agility in response to competitors, customers, suppliers, partners, and government policy (Amniattalab & Ansari, 2016).

Rohrbeck and Kum (2018) conceptually define strategic agility as a potent predictor that safeguards against the adverse impacts of environmental change, positioning organizations for future readiness and superior profitability.

Numerous studies have underscored the positive impact of strategic agility on operational performance dimensions, including productivity, product reliability, service quality, and operational efficiency (Somuyiwa et al., 2011; Oyedijo, 2012; Chirchir, 2015; Okotoh, 2015; Osisioma et al., 2016; Appelbaum et al., 2017; Al-Romeedy, 2019). Govuzela and Mafini (2019) found that technology capability, collaborative innovation, organizational learning, and internal alignment exert a significant positive influence on organizational agility, which in turn significantly influences business performance; Al-Romeedy (2019) similarly found that SME performance can be improved through proper alignment of these four best practices. Ogunleye et al. (2021) indicated that the ability to detect environmental conditions, respond to opportunities, and reconfigure business processes has consistently improved corporate performance, while Alsharah (2020) found that strategic sensitivity, strategic goal selection, clarity of vision, shared responsibility, core capabilities, and collective commitment all have a positive and significant effect on organizational performance.

III. THEORETICAL REVIEW

Among the myriad theories propounded by scholars in the field, Dynamic Capabilities Theory and Disruptive Innovation Theory were chosen to underpin this study.

A. Dynamic Capability Theory

Dynamic Capability Theory (DCT), as conceptualized by Clayton Christensen (1995) and extensively discussed in "The Innovator's Dilemma" (1997), explores how organizations develop and deploy capabilities to adapt and innovate in response to disruptive environmental change. DCT posits that firms can build dynamic capabilities — the ability to sense market changes, seize opportunities, and reconfigure resources — to navigate uncertainty and capitalize on emerging opportunities. In the context of SMEs, DCT is instrumental in guiding strategic decisions regarding the adoption of disruptive technologies, which, as elucidated by Disruptive Innovation Theory, have the potential to fundamentally alter market dynamics and

create new avenues for growth. By leveraging DCT principles, SMEs can proactively integrate disruptive technologies into their business models, enhancing operational efficiency while exploring new market niches and gaining competitive advantage (Petzold et al., 2018). DCT therefore provides a robust theoretical framework for understanding how SMEs can strategically position themselves to innovate and thrive amid disruptive technological change, fostering sustained growth and competitiveness.

B. Disruptive Innovation Theory

Dynamic Capability Theory further emphasizes an organization's ability to integrate, develop, and reconfigure internal and external competencies to respond effectively to dynamic market conditions. Firms possessing dynamic capabilities can not only adapt to environmental change but proactively create opportunities for growth and competitive advantage. In the context of SMEs, DCT serves as a theoretical framework for examining how businesses can strategically leverage technological innovation, enhancing adaptive capabilities to navigate market disruption and capitalize on emerging opportunities. This strategic use of technological innovation allows SMEs not only to improve operational efficiency but also to innovate new products, services, or business models that meet evolving market demands, fostering resilience and long-term competitiveness.

IV. METHODOLOGY

For the purpose of this study, a quantitative survey method was adopted to empirically validate the conceptual hypotheses developed and presented. A sample size of 140 was chosen to represent a population of 1,148 SMEs in Kwara State, adopting Rex B. Kline's method of sample size determination. A Google Form was designed in a five-point Likert scale format — ranging from strongly agreed to strongly disagreed — to elicit primary data. It consisted of two sections: the first captured respondents' demographic variables, and the second addressed the core subject matter of the research problem. Data were represented using descriptive statistics and analyzed via simple regression analysis using SPSS 20 statistical software, with random techniques used for randomization. Hypotheses were tested using Structural Equation Modelling (SEM) to examine the strength and direction of the relationship between the independent variable

(strategic agility) and the dependent variable (SME performance), as well as the mediating effect of technological innovation on this relationship. This approach allowed for a comprehensive examination of the interplay between the variables and provided insight into the magnitude of their impact. The model of the relationship is shown in Fig. 1.

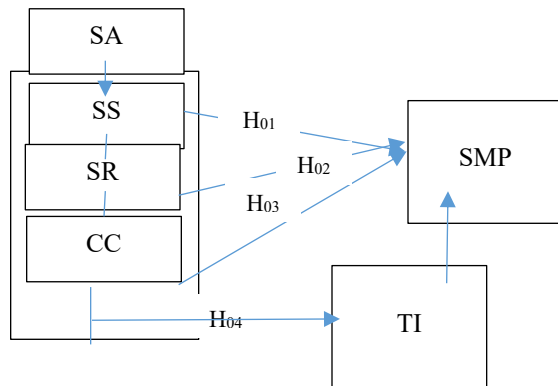


Fig. 1. Schematic diagram of the research model

Source: Researchers' Analysis Result, 2026

V. RESULTS AND DISCUSSION

This section presents the results of the hypothesis tests — specifically, the structural equation modelling results for the direct and indirect effects of the explanatory variables, together with goodness-of-fit tests.

A. Strategic Agility and SME Performance (Direct Effects)

The results from the structural equation model show that technological innovation, strategic agility (comprising strategic sensitivity, strategic response, and collective capability), and SME performance are interrelated. The following coefficients were obtained:

$$smp = 0.343ti + 0.029ss - 0.232sr + 0.668cc \dots\dots (i)$$

The coefficients indicate that technological innovation and the components of strategic agility significantly affect SME performance: a unit change in technological innovation produces a 0.343-unit change in SME performance, strategic sensitivity influences it by 0.029 units, strategic response affects it negatively by 0.232 units, and collective capability positively impacts it by 0.668 units. The computed z-statistics confirm significant relationships for technological innovation (5.20, $p < 0.01$), strategic response (−2.21, $p = 0.027$), and collective

capability (5.43, $p < 0.001$) with SME performance; strategic sensitivity shows a positive but statistically insignificant relationship. These findings imply that technological innovation, strategic response, and collective capability significantly influence SME performance (Table I).

TABLE I. STRUCTURAL EQUATION MODEL OF STRATEGIC AGILITY AND SME PERFORMANCE (DIRECT EFFECTS)

Path	Coeff.	Std. Err.	Z	P > z	Hypothesis	Remark
SS → SMP	0.029	0.039	0.73	0.468	H1	Not accepted
SR → SMP	−0.232	0.105	−2.21	0.027	H2	Accepted
CC → SMP	0.668	0.123	5.43	0.000	H3	Accepted
Constant	0.343	0.661	5.20	0.000	—	—

Source: Researchers' Analysis Result, 2026

B. Strategic Agility and SME Technological Innovation

The structural equation model shows direct effects between strategic agility (strategic sensitivity, strategic response, and collective capability) and SME technological innovation. The following coefficients were obtained:

$$ti = -0.080ss + 0.446sr + 0.932cc \dots\dots (ii)$$

A unit change in strategic sensitivity leads to an 8.03% variation in SME technological innovation (negative direction), a unit change in strategic response leads to a 44.63% variation, and a unit change in collective capability leads to a 93.19% variation — the highest responsiveness among the three. The computed z-statistics and associated probabilities are −1.34 ($p = 0.180$) for strategic sensitivity, 2.89 ($p = 0.004$) for strategic response, and 5.72 ($p < 0.001$) for collective capability. The null hypothesis that strategic sensitivity influences SME technological innovation is not rejected, suggesting a non-significant negative relationship, possibly reflecting respondent disagreement with items measuring strategic sensitivity. Strategic response and collective capability, in contrast, show significant positive relationships with technological innovation at the 99% confidence level (Table II).

TABLE II. STRUCTURAL EQUATION MODEL OF STRATEGIC AGILITY AND SME TECHNOLOGICAL INNOVATION (DIRECT EFFECTS)

Path	Beta	Std. Err.	Z	p-value
SS → TI	-0.0803	0.0599	-1.34	0.180
SR → TI	0.4464	0.1542	2.89	0.004
CC → TI	0.9382	0.1628	5.72	0.000

Source: Researchers' Analysis Result, 2026

C. Strategic Agility and SME Performance (Indirect Effect)

The indirect-effect results, with technological innovation as the mediating variable, indicate the following model:

$$pq = -0.028ss + 0.1533sr + 0.3200cc \dots\dots (iii)$$

A unit change in strategic sensitivity produces a -2.8% variation in SME performance, a unit change in strategic response produces a 15.33% variation, and a unit change in collective capability produces a 32.0% variation — the highest coefficient, indicating that collective capability is the most responsive to SME performance via the mediation pathway (Table III). The computed z-statistics and associated probabilities are -1.30 ($p = 0.194$), 2.53 ($p = 0.011$), and 3.85 ($p < 0.01$) for strategic sensitivity, strategic response, and collective capability respectively. The null hypothesis that strategic sensitivity does not significantly influence SME performance is not rejected, while the null hypotheses for strategic response and collective capability are rejected. Two of the three variables therefore have statistically significant indirect influence on SME performance when technological innovation mediates the relationship between strategic agility and SME performance.

TABLE III. STRATEGIC AGILITY AND SME PERFORMANCE (INDIRECT EFFECTS)

Path	Coeff.	Std. Err.	Z	P > z
SS → TI → SMP	-0.028	0.021	-1.30	0.194
SR → TI → SMP	0.153	0.061	2.53	0.011
CC → TI → SMP	0.320	0.083	3.85	0.000

Source: Researchers' Analysis Result, 2026

D. Goodness of Fit

The study used four goodness-of-fit tests: the equation-level goodness-of-fit test, the Wald test, the goodness-of-

fit statistics, and the stability test. The equation-level test shows that the fitted and predicted variances of innovation are 0.523 and 0.248 respectively, yielding a residual of 0.278; the corresponding values for SME performance are 0.499 and 0.207, yielding a residual of 0.293. The overall goodness of fit is 0.713, indicating that variation in strategic agility explains 71.3% of the variation in SME performance with innovation as the mediating variable (Table IV).

TABLE IV. EQUATION-LEVEL GOODNESS OF FIT

Dep. Var.	Fitted Var.	Predicted Var.	Residual	R ²
TIN	0.523	0.248	0.278	0.472
SMP	0.499	0.207	0.293	0.593
Overall	—	—	—	0.713

Source: Researchers' Analysis Result, 2026

The Wald test for equations was significant at the 1% level, with computed chi-square and p-values of 87.72 ($p < 0.001$) and 142.94 ($p < 0.001$) for technological innovation and SME performance respectively, indicating that the equation coefficients are significantly different from zero (Table V).

TABLE V. WALD TESTS FOR EQUATIONS

Dep. Var.	chi ²	df	p
TIN	87.72	3	0.0000
SMP	142.94	4	0.0000

Source: Researchers' Analysis Result, 2026

The goodness-of-fit statistics show a chi-square of 0.000 for model versus saturated, indicating the model fits the data perfectly, and a chi-square of 150.31 ($p < 0.001$) for baseline versus saturated, indicating a statistically significant, non-trivial model specification (Table VI). Finally, the stability test shows that all eigenvalues lie within the unit circle, confirming model stability (Table VII).

TABLE VI. FIT STATISTICS

Fit statistic	Value	Description
chi2_ms (0)	0.000	model vs. saturated
p > chi2	1.000	—
chi2_bs (7)	150.81	baseline vs. saturated
p > chi2	0.000	—

Source: Researchers' Analysis Result, 2026

TABLE VII. STABILITY ANALYSIS OF SIMULTANEOUS EQUATION SYSTEMS

Eigenvalue	Modulus
0	0
0	0

Source: Researchers' Analysis Result, 2026

Stability index = 0. All eigenvalues lie inside the unit circle; the SEM satisfies the stability condition.

E. Discussion of Findings

The study first assessed the impact of strategic sensitivity (SS) on SME performance in Kwara State. Hypothesis one posited that SS has no significant impact on SME performance. The analysis yielded coefficients of -0.029 and -0.028 for the direct and indirect effects respectively, with z-values and probabilities of 0.73 ($p = 0.468$) and -1.30 ($p = 0.194$). The null hypothesis was therefore not rejected, indicating that strategic sensitivity does not significantly influence SME performance; the negative coefficient suggests a lack of agreement among respondents, contrary to findings by Red-well and Hamilton (2020).

Second, the study examined the effect of strategic response (SR) on SME performance. Hypothesis two proposed that SR has no significant effect on SME performance. Results showed coefficients of -0.232 and 0.153 for the direct and indirect effects respectively, with z-values and probabilities of -2.21 ($p = 0.027$) and 2.53 ($p = 0.011$). The null hypothesis was rejected: strategic response significantly influences SME performance, and the positive indirect coefficient contrasting with the negative direct effect suggests a mediating effect of technological innovation, consistent with Ogunleye et al. (2021).

Third, the study explored the impact of collective capability (CC) on SME performance. Hypothesis three proposed that CC has no significant impact on SME performance. Results indicated coefficients of 0.668 and 0.320 for the direct and indirect effects respectively, with z-values and probabilities of 5.43 ($p < 0.01$) and 3.85 ($p < 0.01$). The null hypothesis was rejected, confirming that collective capability significantly influences SME performance; the positive coefficient suggests consensus among respondents and aligns with prior research such as Arbussa et al. (2017) and Khoshnood and Nematizadeh

(2017), validating the importance of teamwork in organizational outcomes.

Finally, the study investigated the mediating role of technological innovation in the relationship between strategic agility and SME performance. Hypothesis four proposed that technological innovation has no significant mediating effect on this relationship. Results indicated that strategic response and collective capability significantly predicted SME performance in both direct and indirect relationships mediated by technological innovation, with strategic sensitivity, strategic response, and collective capability yielding coefficients of -0.015 , 0.082 , and 0.170 respectively, and z-values and probabilities of -1.30 ($p = 0.194$), 2.53 ($p = 0.011$), and 3.85 ($p = 0.092$). This suggests that technological innovation partially mediates the influence of both strategic response and collective capability on SME performance. Collectively, these findings underscore the nuanced interplay between strategic sensitivity, strategic response, collective capability, and technological innovation in shaping SME performance in Kwara State, providing empirical support for the study's theoretical frameworks and practical implications for enhancing SME competitiveness in dynamic business environments.

TABLE VIII. SUMMARY OF HYPOTHESES TESTED

H0	Statement of Hypothesis	Remark
H01	Strategic sensitivity has no significant impact on SME performance in Kwara State.	Accepted
H02	Strategic response has no significant effect on SME performance in Kwara State.	Rejected
H03	Collective capability has no significant impact on SME performance in Kwara State.	Rejected
H04	Technological innovation has no significant mediating effect on the relationship between strategic agility and SME performance.	Rejected

Source: Researchers' Analysis Result, 2026

F. Summary of Findings

Table VIII shows that one of the four hypotheses tested was accepted (not rejected) and three were rejected, indicating that one construct had no significant influence while three had significant effects on SME performance.

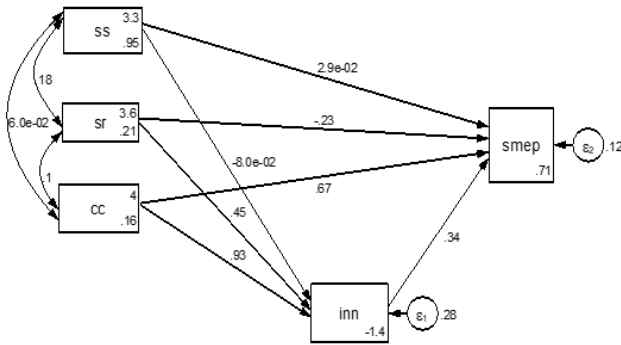


Fig. 2. Path diagram of the SEM result for strategic agility and SME performance

Source: Researchers' Analysis Result, 2026

VI. CONCLUSION

This study examined the impact of strategic agility on SME performance in Kwara State, focusing on the mediating role of technological innovation capacity within a turbulent business environment. The findings indicate that while strategic sensitivity shows minimal impact on enhancing product quality, collective capability significantly aids the development of diverse marketing strategies aimed at competitive advantage.

The research further underscores the critical roles of strategic response and collective capability in driving technological innovation within SMEs, with technological innovation emerging as a pivotal factor contributing to substantial performance gains among SMEs in Kwara State. The study also reveals that technological innovation serves as a crucial mediator in the relationship between strategic agility and SME operational performance, enhancing the effects of strategic response and collective capability on marketing strategy effectiveness.

The study concludes that strategic response and collective capability, as components of strategic agility, exert more pronounced effects on SME performance in Kwara State than strategic sensitivity, though the effectiveness of these constructs is reinforced through technological innovation. SMEs seeking to introduce technological innovation should therefore strategically align resource response and collective capabilities to achieve superior performance. SMEs that foster a supportive technological innovation culture, combined with strategic responsiveness and an innovative workforce mindset, are better positioned to convert profitable and competitive ideas into sustainable

business concepts and market strategies, fostering long-term growth, profitability, and sustainable development.

VII. MANAGERIAL IMPLICATIONS

SME owners must prioritize strategic response and team collaboration to enhance the business's ability to adapt quickly and foster teamwork, as these factors significantly enhance technological innovation and overall performance. Managers should invest in training, cultivate a collaborative culture, and empower employees to innovate.

Managers should also embrace technological innovation by investing in research, adopting advanced tools, and encouraging a culture of innovation among employees. Operational efficiency should be optimized by streamlining processes to support innovation, implementing continuous improvement initiatives, and leveraging automation where possible.

Additionally, SME owners must develop effective marketing strategies that leverage collective capabilities within their teams, deeply understand customer needs, and differentiate their product or service offerings from competitors. Managers should align resources strategically ensuring talent and funds support organizational strategic goals when implementing innovations and manage organizational change effectively, fostering a supportive environment for new ideas.

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