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CAPABILITY DEVELOPMENT ACROSS THE SME LIFE CYCLE: AGE-CONTINGENT EFFECTS ON SUSTAINABLE ENTREPRENEURSHIP IN AN EMERGING ECONOMY

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ABSTRACT

Purpose: *The study examined age-contingent effects of organizational capabilities on Sustainable Entrepreneurship among small and medium-sized businesses (SMEs). In particular, it examined how adaptive capability and strategic agility influence SE and how SME age plays a mediating role in this relationship.*

Design/ Methodology: *The study used a cross-sectional survey research approach and was based on the Resource-Based View and Dynamic Capabilities Theory. Using Taro Yamane's formula, a sample size of 382 was calculated from the population of 8,395 registered SMEs in Lagos State; 349 valid responses were examined through a structured questionnaire. AMOS 23 was used for structural equation modeling (SEM) analysis. Four theories were raised and tested.*

Findings: *The results showed that both strategic agility and adaptive capability significantly influence SE, and their combined impact enhances sustainable entrepreneurship. Significantly, the association between organizational capabilities and SE was partially mediated by SME age, suggesting that firm maturity influences how organisational capability transfer into sustainable outcomes.*

Originality/Value: *By questioning the implicit presumption that organizational capabilities are consistently advantageous across enterprises, this study enhances the theory of sustainable entrepreneurship. The study presents an age-contingent capability paradigm that clarifies when and how strategic agility and adaptive capability produce sustainable results by rethinking SME age as a temporal translation mechanism rather than a demographic control variable. The study shows that capability effectiveness is path-dependent and influenced by firm maturity by integrating the Resource-Based View and Dynamic Capabilities Theory through a temporal lens. This reinterpretation creates new opportunities for lifecycle-based capabilities research and offers a process-oriented explanation of sustainable entrepreneurship.*

KEYWORDS: *Age-contingent capabilities*, *Dynamic capabilities*, SMEs, *Sustainable entrepreneurship*

1. INTRODUCTION

Sustainable entrepreneurship has become a central concern in contemporary entrepreneurship research, particularly as firms are increasingly expected to generate economic value while simultaneously addressing social and environmental challenges. Recent literature has emphasized that achieving sustainable entrepreneurship is not merely a function of entrepreneurial intention or external institutional pressure, but depends critically on firms' internal organizational capabilities—especially their ability to sense environmental change, reconfigure resources, and adapt strategically over time (Teece et al., 2016; Salvi et al., 2023). As a result, organizational capabilities such as rapid sensing of market changes, realigning strategies, and redeploy resources; and continuous learning, process modification, and reconfiguration in response to environmental change are now widely regarded as essential drivers of sustainability-oriented entrepreneurial outcomes.

Despite this growing consensus, current scholarly conversations reveal important unresolved concerns. While dynamic capabilities and resource-based view assume that organizational capabilities are inherently beneficial, emerging evidence suggests that their effects on sustainability outcomes are neither uniform nor linear across firms (Helfat & Peteraf, 2011; Beltramino et al., 2022). In particular, recent studies question whether organizational capability such as strategic agility and adaptive capability always enhance long-term sustainability, or whether their effectiveness depends on organizational context, developmental stage, and temporal conditions (Arend, 2014; Thomas & Douglas, 2024). Yet, these temporal contingencies remain weakly theorized in the sustainable entrepreneurship literature.

Current research makes the implicit assumption that strategic agility and dynamic capabilities have consistently favorable influence on sustainability outcomes. This assumption, however, ignores a significant theoretical conflict: depending on a firm's

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stage of development, capacities may produce declining, magnified, or even limited returns. Previous research has overlooked SME age's possible function as a temporal process that influences how skills are gained, routinized, or destabilized by considering it only as a control variable. By offering an age-contingent viewpoint and contending that organizational talents do not always translate into sustainable entrepreneurship—rather, their effectiveness depends on firm maturity and path-dependent learning processes—this study questions that presumption.

One critical but underexplored temporal factor is firm age. Existing research acknowledges that firm age shapes learning depth, resource accumulation, legitimacy, and strategic routines (Coad et al., 2016; Sinha et al., 2022). However, most empirical studies treat firm age as a control variable or a background characteristic, rather than as a theoretically meaningful mechanism that conditions how organizational capability is converted into sustainable entrepreneurial outcomes. This represents a significant gap, particularly given evidence that younger firms may exhibit flexibility but lack routinized sustainability practices, whereas older firms may possess accumulated capabilities yet suffer from structural inertia that constrains sustainability-oriented innovation.

This limitation is especially salient in emerging economies, where SMEs operate under institutional voids, resource scarcity, regulatory volatility, and infrastructural constraints. In such contexts, organizational capability is developed unevenly over time, and sustainability initiatives often involve trade-offs between short-term survival and long-term value creation. Lagos State, Nigeria's commercial hub, provides a compelling setting to examine these dynamics, as SMEs of varying ages coexist within a highly turbulent and competitive entrepreneurial ecosystem.

Against this backdrop, this study argues that organizational capability does not exert uniform effects on sustainable entrepreneurship across the SME life course. Instead, the effectiveness of strategic agility and adaptive capability is contingent upon firm age, which acts as a temporal mechanism shaping capability deployment, stabilization, and erosion. By reconceptualizing SME age as more than a demographic attribute, this study responds to recent calls for more contingent and process-oriented explanations of sustainable entrepreneurship.

Accordingly, this study examines the age-contingent effects of organizational capability on sustainable entrepreneurship among SMEs in Lagos State, Nigeria. Specifically, it investigates the direct effects of strategic agility and adaptive capability on sustainable entrepreneurship, as well as the mediating role of SME age in this relationship.

This study makes three key contributions. First, it introduces an age-contingent capability perspective, showing that organizational capabilities do not uniformly produce sustainability outcomes and repositioning SME age as a mediating mechanism. Second, it extends the Resource-Based View and Dynamic Capabilities Theory by incorporating a temporal lens that frames sustainable entrepreneurship as path-dependent. Third, it provides emerging-economy evidence demonstrating how firm maturity conditions capability effectiveness under uncertainty.

2.LITERATURE REVIEW

2.1 Theoretical Framework

2.1.1 Dynamic Capabilities Theory (DCT)

The theory of dynamic capability was developed by Teece et al. (1997). The theory of Dynamic Capabilities Theory, which was expanded by Teece (2024), argues that firms achieve long-term success not only through resource possession, but also through their ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments. DCT focuses on three basic capabilities: recognizing opportunities and dangers, seizing opportunities, and modifying organizational structures.

In the context of this study, SMEs' strategic agility and adaptive capability are prominent examples of organisational capability. Strategic agility refers to the ability to detect changes in market patterns and adapt quickly through resource reallocation. Adaptive capability is aligned with the transformation dimension, allowing businesses to reconfigure operations, learn continuously, and adapt to environmental, economic, and social sustainability criteria.

The theory thus provides a solid platform for understanding how organizational skills might improve sustainable entrepreneurship through innovation, resilience, and responsiveness to environmental instability. However, the performance of these capabilities may be influenced by the firm's internal maturity—an element related to SME age—which DCT cannot fully represent.

2.1.2 Resource-Based View (RBV)

The Resource-Based View (Barney, 1991; Wernerfelt, 1984) contends that enterprises acquire a competitive advantage from valuable, rare, inimitable, and non-substitutable (VRIN) resources. Unlike DCT, which emphasizes adaptation and responsiveness, RBV focuses on the stock of internal resources, such as skills, routines, knowledge assets, relational capital, and organizational processes. Sustainable entrepreneurship —which requires innovation, social commitment, and environmental responsiveness—is strongly reliant on a company's internal resource setup.

SME age is especially important in RBV since older enterprises often have larger resource stocks, such as market reputation, experiential knowledge, and established networks, whereas younger firms frequently lack such benefits. RBV thus supports the hypothesis that SME age may mediate how organizational capabilities (as internal resources) influence sustainable entrepreneurship. Younger SMEs may be agile but lack organized routines, whereas older SMEs may have strong routines but limited flexibility.

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2.1.3 Theoretical Integration of the Resource-Based View and Dynamic Capabilities Theory

This study combines the Resource-Based View (RBV) and Dynamic Capabilities Theory (DCT) to explain how organizational capability transfer into Sustainable entrepreneurship (SED). According to RBV, companies that have valuable, uncommon, unique, and non-replaceable resources and capabilities produce better results (Barney, 1991). Strategic agility and adaptability are essential internal resources in SMEs, allowing businesses to recognize opportunities, react to environmental change, and direct resources toward sustainability-focused goals. RBV makes it clear which resources are important, but it offers little information on how these capabilities change, are used, or become less useful over time.

By focusing on how businesses integrate, develop, and restructure capabilities in response to changing surroundings, DCT expands on RBV (Teece et al., 1997). According to this viewpoint, strategic agility encompasses quick strategic realignment and adaptable resource redeployment, whereas adaptive capability reflects ongoing learning and process reconfiguration. When taken as a whole, these skills describe how SMEs transform resources into long-term business success. However, DCT is largely predicated on the idea that reconfiguration and adaptability are always advantageous, providing little justification for the variation in results among organizations.

A crucial temporal component is added to this relationship by firm age. SME age influences learning trajectories and reconfiguration capability from a DCT perspective, while from an RBV perspective it represents cumulative resource buildup and path dependence. This work expands both RBV and DCT by understanding SME age as a temporal translator that influences how capabilities are mobilized, stabilized, or lost across time. In doing so, it offers a more sophisticated theoretical explanation of the development of sustainable entrepreneurship among SMEs and promotes an age-contingent understanding of capability effectiveness.

While RBV explains why valuable capabilities matter and DCT explains how capabilities are reconfigured, neither theory sufficiently explains when capability deployment yields sustainable outcomes. By incorporating SME age as a temporal mediator, this study advances a lifecycle-informed integration of RBV and DCT, suggesting that capability value is not static but evolves across stages of organizational development.

2.2 Conceptual Review

2.2.1 Sustainable entrepreneurship

Sustainable entrepreneurship combines traditional entrepreneurship aims (innovation, profitability, and competitiveness) with larger socio-environmental goals including resource conservation and social equality. It refers to operating a business with the goal of making a profit while simultaneously having a positive influence on the environment and society (Akpan & Ibidunni, 2023; Sanchez-Robles et al., 2023). Thus, sustainable entrepreneurship considers not only economic objectives but also social and environmental obligations. This contrasts with traditional entrepreneurship, which is primarily concerned with economic benefit and profit maximization. According to Eskandarzadeh (2024), sustainable entrepreneurship presents entrepreneurs as systemic change agents who can address societal concerns through innovative solutions.

Venkataraman (1997) defined sustainable entrepreneurship as the study of how chances for developing future goods and services are recognized, created, and used, as well as by whom and with what effects. His definition emphasizes that the outcomes of entrepreneurial efforts can be economic, psychological, or societal. Lüdeke-Freund et al. (2020) define SE as the process by which businesses incorporate sustainability concepts into their business models, resulting in shared value while maintaining long-term viability. In contrast, Gast et al. (2017) defined sustainable entrepreneurship as the process of recognizing, analyzing, and pursuing possibilities that reduce the negative environmental effect of business operations while benefiting society and the local environment.

In the context of SMEs in emerging economies, sustainable entrepreneurship goes beyond economic survival to encompass responsible production, staff empowerment, waste minimization, and contributions to community development (Crawford et al., 2022; Lüdeke-Freund et al., 2020). SE is especially important for Lagos-based SMEs because of the city's environmental vulnerabilities, rapid population increase, and institutional demands to adopt sustainable practices. SE is thus a multifaceted outcome influenced by organizational capabilities, external surroundings, and firm-level characteristics—including SME age.

2.2 Strategic Agility and Sustainable Entrepreneurship

Strategic agility is frequently conceptualized as a firm's ability to rapidly sense market changes, realign strategies, and redeploy resources in response to environmental turbulence (Doz et al., 2023). Empirical research has linked strategic agility to improved innovation performance, responsiveness to regulatory change, and sustainability-oriented opportunity recognition, particularly in volatile environments (Nguyen, 2024; Bouguerra et al., 2024). These studies suggest that agile firms are better positioned to integrate sustainability considerations into strategic decision-making.

However, scholars increasingly caution against an uncritical celebration of agility. Eisenhardt and Brown (1998) argue that excessive speed and flexibility can erode strategic commitment, leading to fragmented initiatives and shallow sustainability adoption. For SMEs, which often operate with limited slack resources, repeated strategic shifts may undermine the routinization of sustainability practices and weaken long-term capability accumulation (O'Reilly & Tushman, 2013). This tension raises a fundamental question: Is strategic agility always

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conducive to sustainable entrepreneurship, or does its effectiveness depend on organizational maturity and experience? In emerging economy contexts such as Nigeria, this question becomes particularly salient. SMEs face persistent regulatory uncertainty, infrastructural constraints, and market volatility, which may amplify both the benefits and risks of agility. As a result, the sustainability value of strategic agility may not be uniform across firms, but rather contingent upon firm-level characteristics such as age and developmental stage.

Strategic agility enables firms to sense environmental changes, reconfigure resources, and adjust strategic priorities in response to uncertainty (Sham et al., 2021). Within the sustainable entrepreneurship literature, strategic agility is commonly viewed as a mechanism through which firms identify sustainability-oriented opportunities and respond to regulatory, technological, and stakeholder pressures. However, scholars increasingly caution that excessive agility may undermine strategic coherence and the institutionalization of sustainability practices, particularly in resource-constrained SMEs.

In emerging economies, where market volatility and institutional uncertainty are pronounced, strategic agility may support sustainable entrepreneurship by enabling firms to align economic objectives with evolving sustainability expectations (Levinthal & March, 1993; Mata et al., 2024). Nevertheless, the effectiveness of strategic agility is likely to depend on the firm's capacity to balance flexibility with long-term value creation.
H1: Strategic agility has a significant positive effect on sustainable entrepreneurship among SMEs

2.2.3 Adaptative Capability and Sustainable Entrepreneurship
Adaptive capability refers to an organization's capacity for continuous learning, process modification, and reconfiguration in response to environmental change (Osiyevskyy et al., 2023). Prior research associate's adaptive capability with resilience, innovation, and the integration of sustainability into core operations (Bansal & DesJardine, 2014; Omondi, 2024). From this perspective, adaptive capability is viewed as a foundational mechanism through which firms achieve sustainable entrepreneurship.

Yet, this optimistic view has been challenged by scholars who warn that constant adaptation may hinder the development of stable routines and long-term competencies. Levinthal and March (1993) argue that excessive experimentation can trap firms in cycles of short-term adjustment, limiting deeper learning and sustainable innovation. Similarly, Garud et al. (2025) suggest that frequent reconfiguration may disrupt institutionalized sustainability practices, especially in SMEs with limited managerial capacity.

These competing views suggest that adaptive capability may produce sustainability benefits only when firms possess sufficient organizational maturity to absorb learning, institutionalize change, and balance exploration with exploitation. This raises the possibility that firm age plays a crucial role in shaping how adaptive capability influences sustainable entrepreneurship.

Adaptive capability reflects a firm's ability to learn, modify routines, and reconfigure processes in response to environmental change. Prior research suggests that adaptive capability facilitates resilience and sustainability by enabling continuous improvement and the integration of environmental and social considerations into organizational operations (Quansah et al., 2022). Yet, theoretical perspectives on organizational learning warn that excessive adaptation may lead to instability, shallow learning, and fragmented sustainability initiatives.

For SMEs operating under resource constraints, adaptive capability may enhance sustainable entrepreneurship by promoting learning-based adjustments that support long-term value creation. However, its effectiveness depends on whether learning outcomes are sufficiently institutionalized rather than continuously disrupted.

Thus, the hypothesis of this study is that:
H2: Adaptive capability has a significant positive effect on sustainable entrepreneurship among SMEs.

2.2.4 Organisational Capability and Sustainable Entrepreneurship
While organizational capability is widely recognized as critical enablers of sustainable entrepreneurship, the literature remains divided regarding how and when these capabilities translate into sustainability outcomes. On one hand, scholars drawing from the Resource-Based View and Dynamic Capabilities Theory argue that capabilities such as strategic agility and adaptive capability enable firms to sense environmental changes, reconfigure resources, and align business models with sustainability objectives (Teece et al., 2024; Salvi et al., 2023; Phan et al., 2023; Olamade et al., 2011). From this perspective, organizational capability is assumed to exert broadly positive and reinforcing effects on sustainable entrepreneurship.

On the other hand, an emerging stream of research challenges this assumption of uniform benefit. Recent studies highlight that excessive agility or continuous adaptation may undermine strategic coherence, generate organizational fatigue, and encourage short-term opportunism at the expense of long-term sustainability (Eisenhardt & Martin, 2000; Helfat & Winter, 2011). In resource-constrained SMEs, frequent reconfiguration can dilute learning accumulation and weaken institutionalized sustainability practices (Beltramino et al., 2022; Thomas & Douglas, 2024). These findings suggest that organizational capability may exhibit diminishing or contingent returns, particularly when deployed without sufficient organizational maturity.

This debate signals that the relationship between organizational capability and sustainable entrepreneurship is more complex than previously assumed. Rather than being universally advantageous,

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the effectiveness of strategic agility and adaptive capability may depend on internal organizational conditions that shape learning depth, resource orchestration, and strategic discipline.
H3: Organisational capability has no significant effect on sustainable entrepreneurship among SMEs.

2.2.5 Age of SMEs as a Mediating Variable

Firm age has long been recognized as influencing resource accumulation, legitimacy, and learning depth (Coad et al., 2016). However, its role in shaping the effectiveness of organizational capability remains under-theorized. Younger SMEs often benefit from flexibility and entrepreneurial experimentation but lack formalized routines and sustainability systems. In contrast, older SMEs typically possess accumulated resources and established processes but may experience structural inertia that constrains strategic renewal (Beltramino et al., 2022; Thomas & Douglas, 2024).

Despite these insights, most empirical studies treat firm age as a control variable, implicitly assuming that capabilities operate similarly across the firm life cycle. This overlooks the possibility that organizational capabilities may change meaning and effectiveness over time. In sustainability-oriented entrepreneurship, where long-term value creation requires cumulative learning and institutionalization, such temporal dynamics are especially critical.

This study addresses this gap by conceptualizing SME age as a temporal mechanism that mediates how organizational capabilities are transformed into sustainable entrepreneurship outcomes, thereby offering a more contingent and process-oriented explanation of capability effectiveness.

Although organizational capability is widely regarded as drivers of sustainable entrepreneurship, their effectiveness may vary across the firm life cycle (Qader et al/. 2022). Younger SMEs tend to exhibit flexibility and experimentation but often lack routinized sustainability practices and accumulated learning. In contrast, older SMEs benefit from experience, legitimacy, and established routines, yet may face structural inertia that constrains renewal.

Drawing on dynamic capabilities and capability lifecycle perspectives, this study argues that SME age shapes how strategic agility and adaptive capability are transformed into sustainability outcomes. Rather than functioning merely as a background characteristic, SME age acts as a temporal mechanism through which organizational capability is stabilized, amplified, or constrained.

H4: SME age mediates the relationship between organizational capability and sustainable entrepreneurship among SMEs.
According to extant literature, SMEs with strong sensing, learning, and resource-reconfiguration capabilities are better positioned to integrate sustainability concepts into their operations. In this sense, it is often acknowledged that organizational capability—in particular, strategic agility and adaptive capability—are important forces behind Sustainable entrepreneurship. Despite these realizations, there are still a number of significant gaps.

First, there is still no empirical data connecting organizational capability to sustainable entrepreneurship in developing African countries, where resource scarcity, market instability, and institutional limitations influence entrepreneurial success. In particular, Lagos State's fiercely competitive and dynamic business environment has not gotten any systematic scholarly attention. Second, while the Resource-Based View (RBV) and Dynamic Capabilities Theory (DCT) recognize that routines, learning, and resource accumulation are influenced by firm age, most previous research has treated SME age as a background feature rather than investigating its explanatory or mediating role in capability–outcome relationships. Third, there are few integrative models that jointly take into account strategic agility, adaptive capability, SME age, and sustainable entrepreneurship because previous research often looks at organizational capabilities or company traits in isolation.

These gaps are exacerbated by new research that casts doubt on the notion that adaptive capability and strategic agility are always advantageous for sustainability, pointing out dangers like inertia traps, short-termism, and strategic fragmentation. However, there is no theoretical justification for the emergence of these paradoxes. In order to overcome this constraint, the current study makes the case that SME age is a crucial temporal mechanism that influences how organizational capability result in long-term business success.

3. METHODOLOGY

3.1 Research Design

In order to investigate the relationships between organizational capacity, SME age, and Sustainable entrepreneurship, this study used a cross-sectional research approach. For exploratory and theory-testing research, a cross-sectional technique was suitable, especially when the goal was to evaluate theoretically based interactions within a particular contextual setting (Hair et al., 2019). This design enabled the effective capture of perceptual and behavioral patterns at a single point in time, given the dynamic and resource-constrained nature of SMEs in Lagos State. This provided important empirical insights into the relationship between strategic agility and adaptive capability and sustainability-oriented entrepreneurial outcomes. The cross-sectional design was appropriate for establishing statistically significant connections and testing theoretically informed models.

3.2 Population of the Study

Lagos State has 8,395 registered SMEs out of 73,081 nationwide, the most of any state, according to the last national survey report of Small and Medium Enterprises Development Agency of Nigeria (SMEDAN, 2021) in partnership with the National Bureau of Statistics (NBS). Therefore, these 8,395 SMEs operating in Lagos State were considered the population for the

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purposes of this study, with a focus on those in the retail industry. Small enterprises had 10–49 employees and assets valued between ₦5 million and ₦50 million. Medium-sized enterprises had 50–199 employees and assets ranging from ₦50 million to less than ₦500 million. The inclusion of SMEs was justified by their vital contribution to economic growth, job creation, poverty reduction, innovation, flexibility, and meeting sustainable development goals (Endris & Kassegn, 2022). Lagos State was chosen for the study because it served as Nigeria's former capital and commercial hub, with a large concentration of SMEs in a variety of industries.

Micro-enterprises with fewer than 10 employees and assets under ₦5 million were omitted from the study. This exclusion was important to keep the focus on the formal SME group, which improved data quality, consistency, and comparison with more structured and established businesses.

3.3 Sampling Methods and Sample Size

The study was conducted using a multi-stage sampling technique. First, Lagos State was divided into three senatorial districts: Lagos East, West, and Central. Within each stratum, cluster sampling was utilized to choose three significant business districts with a high SMEs concentration. Purposive sampling was then applied to pick SME owners with relevant knowledge and expertise linked to the study variables (Rahi, 2017). The sample size was analysed after subjecting the data to Taro Yamane's (1967) formula:

no = N / (1 + N e2); where
no = Sample size,
N = Population = 8395,
e2 = Acceptable sampling error, desired level of precision, confidence interval expressed as decimal (e.g., 0.05).
no = 8395 / (1 + 8395*.0025); no = 8395 / (21.99); where
no = 381.76 This was approximated to 382.

3.4 Assessment and Validation of Research Instruments

Data were collected using a standardized questionnaire divided into two sections. Section A captured respondents' demographic characteristics, including gender, educational background, and work experience, while Section B contained items measuring the study variables. Adaptive capability was measured using a six-item scale adapted from Whitman et al. (2013), with a reliability coefficient of 0.92. Strategic agility was assessed using a six-item scale developed by Gurbuz and Hatunoglu (2022), which reported a Cronbach's alpha of 0.92. Sustainable entrepreneurship was measured using a six-item scale adapted from Sarango-Lalangui et al. (2018), capturing the economic, social, and environmental dimensions of sustainability, with a reliability value of 0.78.

Firm age was measured using a structured Likert-scale instrument designed to capture the SMEs chronological age where 1 = Younger SMEs (0-5 years old), 2 = Growing SMEs (6-10 years), 3 = Mature SMEs (11-15 years), 4 = Established SMEs (16-20 years), and 5 = Well established (Above 20 years).

Apart from SMEs age, all items were measured on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Content, construct, and face validity were ensured through expert review by management science specialists in entrepreneurship and SME development, leading to necessary refinements. Internal consistency reliability was assessed using Cronbach's alpha, with values above 0.70 considered acceptable in line with Pallant (2020).

3.5Data Analysis Methods

The data was analyzed using AMOS version 23 for Structural Equation Modeling (SEM). The measurement model's validity and reliability were initially assessed using a Confirmatory Factor Analysis (CFA). The Maximum Likelihood Estimation (MLE) approach was employed to estimate the model. Several goodness-of-fit indices were used to test model fit, such as χ^2/df, CFI, TLI, RMSEA, and SRMR. Model fit was deemed adequate when RMSEA and SRMR were less than 0.08 and CFI and TLI were equal to or better than 0.90 (Hu & Bentler, 1999). Composite Reliability (CR) and Average Variance Extracted (AVE) were used to determine construct reliability and convergent validity.

3.5.1 Validity and Reliability of the Study Instrument

A panel of management science specialists from the Department of Business Administration reviewed the questionnaire to verify the validity of the research tool. To better connect some items with the study's goals, the experts suggested making minor adjustments. A pilot test with 40 respondents was used to further evaluate the questionnaire's reliability. A Cronbach's alpha value of 0.70 or above was deemed acceptable, in accordance with Nunnally and Bernstein (1994). Every scale was assessed to make sure it complied with this cutoff. As indicated in Table I, the measurement model was evaluated using a number of statistical indices, such as composite reliability (CR), average variance extracted (AVE), maximum shared variance (MSV), and maximum reliability (MaxR(H)).

3.5.2 Assessment of Construct Validity and Reliability

With CR values ranging from 0.87 to 0.92, all constructions showed good internal consistency in Table I, surpassing the suggested cutoff of 0.70 (Hair et al., 2019). Adequate convergent validity was confirmed by the AVE values for all constructs, which varied from 0.56 to 0.64 and exceeded the minimum permissible value of 0.50 (Fornell & Larcker, 1981). This shows that each construct's items account for more than half of its variation.

Likewise, Table showed that the Fornell-Larcker criterion, which contrasts the square root of AVE (diagonal values in bold) with the inter-construct correlations (off-diagonal values), was used to evaluate discriminant validity. Discriminant validity was confirmed for all constructs when the square root of AVE was greater than the correlations with other constructs. Furthermore, the MaxR(H) values were similar with the CR values and ranged from 0.89 to 0.94, indicating that the latent constructs were measured with reliability. Discriminant validity was further

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supported by the fact that the MSV values for each concept were lower than the corresponding AVEs. All of these findings show that the measurement model is valid and dependable, and the constructs are sufficiently different for structural analysis. Both procedural and statistical remedies were used to mitigate possible common method bias. To lessen social desirability bias, confidentiality and anonymity were guaranteed procedurally. These data imply that the validity of the results was not seriously threatened by common technique bias.

Table I. Construct Reliability and Validity Assessment (CR, AVE, MSV, MaxR(H), and Discriminant Validity via Fornell-Larcker Criterion)

	CR	AVE	MSV	MaxR(H)	SSS	STA	ACA	AGE
SED	.88	.56	.41	.90	**.75**			
STA	.90	.60	.36	.92	.556	**.77**		
ADC	.92	.64	.41	.94	.638	.596	**.80**	
AGE	.87	.58	.27	.89	.343	.522	.500	**.76**

Note: SED*: Sustainable entrepreneurship; STA: Strategic agility; ADC: Adaptive capability; AGE: SME's age.*
Source: Table Compiled using from AMOS 23 output by Author, (2026)

3.6 Ethical Considerations

Ethical norms were properly followed throughout the study. All participants provided informed consent after being clearly explained the study's aims, procedures, potential hazards, and benefits (Govil, 2013). Participation was completely voluntary, and respondents were notified that they might withdraw at any time without consequence. Aggregating responses and restricting data access-maintained confidentiality and anonymity. The study adhered to the ideals of transparency, integrity, honesty, and respect, while prioritizing the protection of participants' rights, welfare, and privacy. Although age introduces a temporal dimension, longitudinal research is required to directly observe capability evolution across time. Future research may adopt panel designs to validate the lifecycle mechanisms proposed here.

4.RESULTS

The study distributed 382 copies of the questionnaire. 349 of the 382 surveys that were sent out were accurately filled out and returned, yielding a 91% response rate. These 349 surveys were deemed sufficient and legitimate for further data analysis. The final sample consisted of 199 (57%) male respondents and 153 (47%) female respondents, with a mean age of 1.49 (SD = .496). 22 respondents (6.3%) had ND/NCE certificates, 219 (62.8%) had B.Sc./B.A./HND degrees, 65 (18.6%) had M.Sc./MBA degrees, and 43 (12.3%) stated having additional academic credentials. 80 respondents (22.9%) reported having worked for 0–5 years, 102 (29.2%) for 6–10 years, 152 (43.6%) for 11–15 years, and 15 respondents (4.3%) for 16 years or more.

Table II. Model Fit Indices and Acceptability Thresholds

Model fit Indices	Value	Threshold/Comment
χ^2 (df)	258.189	Model fit tested
CFI	.992	≥ 0.90 acceptable fit
GFI	.941	≥ 0.90 acceptable fit
NFI	.944	≥ 0.90 acceptable fit
TLI	.991	≥ 0.90 acceptable fit
RMSEA	.021	≤ 0.08 acceptable fit
SRMR	.031	≤ 0.08 acceptable fit

Source: Table Compiled using from AMOS 23 output by Author, (2026)

The measurement model shows a good match to the data, according to the fit indices shown in Table II. The model was sufficiently tested, according to the chi-square statistic (χ^2 = 258.189). Good model fit is shown by comparative fit index (CFI =.992), goodness-of-fit index (GFI =.941), normed fit index (NFI =.944), and Tucker-Lewis's index (TLI =.991) all exceeding the suggested cutoff of 0.90. The measurement model's sufficiency is further supported by the fact that both the standardized root means square residual (SRMR =.031) and the root mean square error of approximation (RMSEA =.021) are far below the permissible upper limit of 0.08. All things considered; the findings offer compelling proof of a superb model match.

Table III Path Analysis Results of Direct and Joint Effects

Path	R^2	(β)	p-value	Remark
STA → SED		.49	< 0.01	Direct effect, Significant
ADC → SED		.41	< 0.01	Direct effect; Significant
OGC → SED	.406		< 0.01	Joint effect; Significant

Note: *STA*: *Strategic agility; ADC*: Adaptive capability; OGC Organisational capability; *SED*: *Sustainable entrepreneurship*.

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Source: Table Compiled using from AMOS 23 output by Author, (2026)

Both strategic agility (β =.49, p < 0.01) and adaptive capability (β =.41, p < 0.01) have a substantial direct impact on sustainable entrepreneurship according to the path analysis results in Table III. According to these standardised coefficients, if all other factors remain unchanged, a one-standard deviation increase in either strategic agility or adaptive capability leads to an increase in sustainable entrepreneurial development of .49 and 0.41 standard deviations, respectively. The size of these effects shows that both elements have a similar impact, highlighting the significance of both adaptive capability and strategic agility for attaining sustainable entrepreneurship in entrepreneurial businesses.

Therefore, null hypotheses one and two were rejected and alternative hypotheses one and two supported.

It is estimated in Table III that the predictors of organisational capability (strategic agility and adaptive capability) explain 40.6 percent of its variance. In other words, the error variance of sustainable entrepreneurship is approximately 59.4 percent of the variance of sustainable entrepreneurship itself. Therefore, hypothesis three which stated that organisational capability (strategic agility and adaptive capability) jointly has a significant positive influence on sustainable entrepreneurship was supported. The path diagram for the above Table III is shown in Fig.1

Fig. 1. Path diagram showing the relationship between Strategic agility, Adaptive Capability and Sustainable entrepreneurship

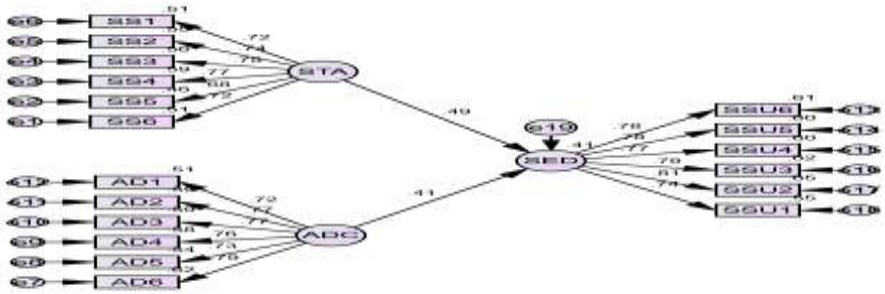


Fig.1 Source: Extracted from AMOS 23 output by Author, (2026)

Table IV. The Mediating effects of SME's Age.

Variable/Effect	B	SE	P	95% Confidence Interval		Decision
				Upper boundary	Lower boundary	
OGC → SED	.602	.073	.000	.567	.783	Significant
OGC → AGE	.539	.067	.000	.415	.640	
OGC→ AGE → SED	.203	.059	.000	.120	.302	Significant
Direct	.602	2.23	.000	.567	.783	Significant
Indirect	.098			.064	.165	significant
Total	.700					

Note: SED: Sustainable entrepreneurship; OGC: Organisational capability; AGE: SME's Age.

Source: Table Compiled using from AMOS 23 output by Author, (2026)

Using bootstrapping and 5,000 resamples, the mediating effect was examined. Since the confidence interval did not include zero from Table IV, the results showed that the indirect effect of organisational capability on sustainable entrepreneurship through SME's age was statistically significant (β =.203, 95% CI [.120,.302]). Furthermore, partial mediation was indicated by the direct effect's continued significance (β =.602, p <.05). These results imply that the relationship between organisational capability and sustainable entrepreneurship can be partially explained by SME's age. The path diagram for the mediation relationship is shown below:

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Fig. 2. Path diagram showing the Mediating effect of SME's Age on the relationship between Organisational capability and Sustainable entrepreneurship.

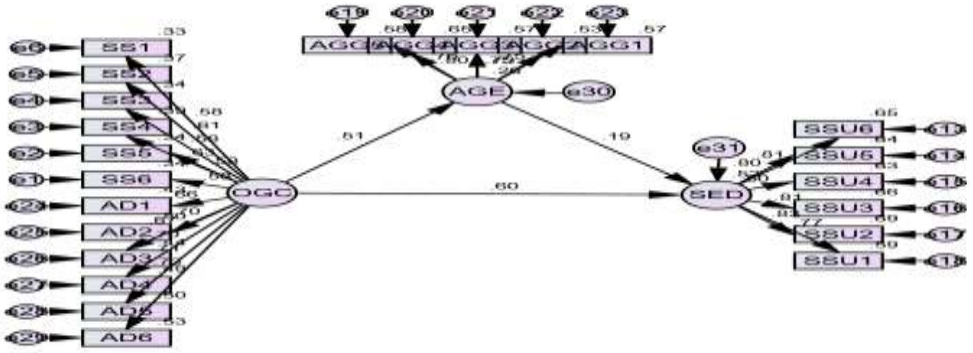


Fig.2 Source: Extracted from AMOS 23 output by Author, (2026)

5.DISCUSSION OF FINDINGS

This study examined the mediating effect of SME's age in the relationship between organisational capability—more especially, strategic agility and adaptive capability—and sustainable entrepreneurship among SMEs. The constructs were robust and dependable, as evidenced by the measurement model's excellent fit across several indices (CFI =.997, GFI =.943, NFI =.969, TLI =.996, RMSEA =.018, SRMR =.021). According to the path analysis, sustainable entrepreneurship was significantly impacted by both strategic agility (β =.49, $p < 0.001$) and adaptable capability (β =.41, $p < 0.001$). Furthermore, the considerable indirect effect of organisational capability (strategic agility and adaptive capability) on sustainable entrepreneurship via SME age (OGC → AGE → SED) indicates that SME age moderated the relationship between organizational capability and sustainable entrepreneurship.

These findings demonstrate that, especially in dynamic and resource-constrained environments like Lagos, both internal strategic and adaptive competencies are critical for attaining sustainable entrepreneurship development. Establishing temporal priority among the variables is limited by the cross-sectional nature of the data. Nonetheless, the observed links are theoretically supported and align with well-established viewpoints in the literature on strategic management and entrepreneurship (Tetteh et al., 2025).

The study found a strong correlation between strategic agility and sustainable entrepreneurship, accepting the first hypothesis. This suggests that respondents believed SMEs were better positioned to achieve sustainable entrepreneurship through enhanced innovation, long-term competitiveness, and balanced economic, social, and environmental performance if they could detect environmental changes early, react quickly to market dynamics, and reconfigure their resources and strategies accordingly. The finding supports the Dynamic Capabilities Theory (DCT) (Teece et al., 1997). According to research by Doz et al. (2023), SMEs in Lagos with high strategic agility are better able to predict market swings, adjust to regulatory changes, and realign operations to take advantage of sustainability opportunities.

The study found a strong correlation between adaptive capability and sustainable entrepreneurship, accepting the second hypothesis. This suggests that respondents believed that SMEs with strong adaptive capability—which is demonstrated by their capacity to continuously learn, adapt internal procedures, modify operational structures, and realign resources in response to environmental uncertainties—are more likely to develop sustainable entrepreneurship. This finding is in line with the Resource-Based View (RBV) (Barney, 1991) and is consistent with those of Osiyevskyy et al. (2023) and Omondi (2024).

The study revealed that organizational capability—represented by the combined effect of strategic agility and adaptive capability—has a substantial influence on sustainable entrepreneurial after accepting the third hypothesis. These findings align with the submission of Phan et al., (2023) and Olamade et al., (2011). The results emphasize the complimentary nature of these capacities.

The study found that SME age influences the relationship between organizational capability and sustainable entrepreneurial, supporting the fourth hypothesis. These findings agree with the aversion of Coad, (2025), Beltramino et al., (2022), and Rath et al. (2025). The Resource-Based View and Dynamic Capabilities Theory provide a solid foundation for the understanding of the structural routes. The direction and importance of the observed routes are therefore theoretically justified. Despite the fact that the results are based on Lagos, the setting is a highly turbulent and institutionally restricted setting that is appropriate for testing theories.

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6.CONCLUSION AND RECOMMENDATIONS

This study provides strong empirical evidence that organizational capability, particularly strategic agility and adaptive aptitude, are key drivers of sustained entrepreneurial growth among SMEs, particularly in the dynamic and resource-constrained context of Lagos State. The findings demonstrate that these skills have a major direct impact on sustainable entrepreneurship and emphasize the complimentary nature of agility and adaptability in fostering long-term economic, economic, social, and environmental value creation.

Importantly, the study demonstrates that firm maturity influences how organizational capability is transformed into sustainable outcomes by establishing SME age as a significant mediating element. The study concludes that the best way for SMEs to achieve sustainable entrepreneurship is to match their stage of development with strategic agility and adaptive competence.

Three significant contributions are made by this study: theoretically, it advances an age-contingent integration of the Resource-Based View and Dynamic Capabilities Theory; empirically, it provides solid evidence from African SMEs; and contextually, it clarifies how organizational capabilities drive sustainable entrepreneurship under institutional and resource constraints. The results contribute to sustainable entrepreneurship scholarship by reframing sustainability outcomes as **path-dependent rather than immediate**. Younger SMEs may exhibit high agility and adaptability, yet lack the organizational depth required to institutionalize sustainability practices. Conversely, older SMEs may possess stronger routines and resources but face declining flexibility that limits sustainability-oriented innovation. This non-linear pattern underscores that "more capability" does not necessarily lead to "more sustainability."

By uncovering these temporal tensions, the study responds to recent calls for more contingent and process-oriented explanations of sustainable entrepreneurship. It demonstrates that sustainable entrepreneurship emerges through the interaction of organizational capabilities and firm maturity, rather than through capability possession alone.

Based on the findings of the study, the following recommendations were suggested for the study:

i. SMEs should consciously increase their strategic agility by institutionalizing environmental scanning, quick decision-making, and adaptable resource reconfiguration procedures by proactively responding to regulatory, market, and sustainability pressures, thereby improving long-term economic, social, and environmental performance.
ii. SMEs can invest in the development of adaptive capabilities by encouraging ongoing learning, process improvement, and innovation-oriented cultures through frequent training, knowledge-sharing channels, and iterative evaluation of operational procedures.
iii. Instead of treating strategic agility and adaptive capability as distinct capabilities, SMEs should adopt an integrated approach to organisational capability. This would enable SMEs to more successfully implement sustainable business practices and achieve long-term entrepreneurial growth.
iv. By helping younger SMEs create formal structures and sustainability practices to enhance their agility and helping older SMEs revitalize flexibility and innovation to overcome structural inertia, policymakers and SME support organizations can create age-sensitive capability-building interventions.

7.THEORETICAL AND PRACTICAL IMPLICATIONS OF THE STUDY

This study set out to examine how organizational capability influence sustainable entrepreneurship, and whether these effects are conditioned by firm age. The findings provide strong empirical support for the argument that strategic agility and adaptive capability are important drivers of sustainable entrepreneurship. However, more importantly, the results reveal that the effectiveness of organizational capability is **not uniform across firms**, but is partially contingent upon SME age.

By demonstrating that SME age mediates the relationship between organizational capability and sustainable entrepreneurship, this study challenges the implicit assumption in much of the dynamic capabilities literature that such capabilities are universally beneficial. Instead, the findings suggest that capabilities derive their sustainability value through **temporal processes of learning, accumulation, and institutionalization.**

From a Dynamic Capabilities Theory perspective, the results indicate that sensing, seizing, and reconfiguring capabilities do not automatically translate into sustainable outcomes. While strategic agility enables rapid response to environmental change, its sustainability impact depends on whether firms possess sufficient maturity to align agility with long-term value creation rather than short-term adjustment. This finding extends Teece et al.'s (1997) framework by highlighting firm age as a boundary condition that shapes the returns to dynamic capabilities.

Similarly, from a Resource-Based View perspective, the findings suggest that the possession of valuable and rare capabilities is insufficient for sustainable entrepreneurship. Instead, the ability to deploy these capabilities effectively depends on cumulative experience, routinization, and legitimacy—attributes closely associated with firm age. By positioning SME age as a mediating mechanism, this study advances RBV by introducing a temporal dimension that explains how resources evolve into sustainability-oriented advantages over time.

Importantly, this study shifts the capability discourse from a variance-based logic ("capabilities lead to performance") to a temporal-process logic ("capabilities generate performance under specific maturity conditions"). By identifying SME age as a mediating mechanism, the findings introduce a boundary condition to dynamic capabilities theory and challenge the

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universality assumption embedded in much sustainability-capability research.

8.SUGGESTIONS FOR FURTHER STUDY

Despite the contributions of this study, there are some limitations the study is exposed to. One of the limitations is the fact that the study was limited to three variables—strategic agility, adaptive capability, sustainable entrepreneurship development. Further study should examine other organizational capabilities and their combined impact on sustainable entrepreneurship, including as resilience, innovation capability, and leadership style. The study was limited to Lagos State, Nigeria. Further study should, therefore, expand the study to SMEs in other regions or Sub-Saharan Africa.

The study used cross-sectional design and the approach was quantitative. Hence further studies should implement longitudinal designs to monitor how adaptability and strategic agility change over time. Other studies should use qualitative or mixed-method approaches. The study also made use of SME age as a mediating variable. Examining additional mediating and moderating factors such as financial access, stakeholder engagement, or digital change would not be a bad idea.

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