

EXPLORING THE LINK BETWEEN ENTREPRENEURIAL LEADERSHIP AND ORGANIZATIONAL AGILITY OF SMALL FIRMS IN KOGI STATE

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Cite this article as: Adomokhai, S. S., Nafiu, A. T., Aduku, D. J., and Nafiu, I. O. (2026). Exploring the link between entrepreneurial leadership and organizational agility of small firms in Kogi State. *Journal of Interdisciplinary Postgraduate Research*, 1(2), 293–304.

Abstract

This study examined entrepreneurial leadership and the organizational agility of small firms. It investigated the effects of strategic flexibility on operational agility, of proactiveness on customer agility, and of learning orientation on technological agility among small firms in Kogi State, Nigeria. A survey research design was adopted, and the population of interest comprised the owners and managers of small firms in the state. A structured questionnaire served as the instrument of data collection, its construct validity was assessed through confirmatory factor analysis, and the internal consistency of the scales was established through the Cronbach alpha coefficient. The regression weights of a structural equation model provided the basis for testing the hypotheses. The findings showed that strategic flexibility exerts a positive and significant effect on operational agility, with a standardised estimate of 0.873 at a probability value below 0.01, that proactiveness exerts a positive and significant effect on customer agility, with a standardised estimate of 0.945, and that learning orientation exerts a positive and significant effect on technological agility, with a standardised estimate of 0.951. The study concluded that entrepreneurial leadership contributes substantially to organizational agility, and that this contribution flows from adaptive leadership attributes rather than from risk-taking behaviour. It was recommended that organizations seeking to strengthen their agility cultivate strategic flexibility, proactiveness, and learning orientation among their leaders, since these capabilities, rather than risk appetite alone, account for the agility that allows small firms to endure volatile and competitive markets.

Keywords: entrepreneurial leadership; strategic flexibility; proactiveness; organizational agility; operational agility

1. Introduction

Small firms across the globe, and especially those within the emerging economies of the world, Nigeria among them, are exposed to local and global disruptions driven by volatile markets. These disruptions compel firms to find ways of adapting if they are to remain competitive within their industries. In such conditions entrepreneurial leadership is recognised as one of the vital factors that allows firms to develop the adaptability they require to outlast disruption and to emerge as competitive players in their sectors (Townsend, Hunt, McMullen and Sarasvathy, 2018; Haque, 2025). Research in this area has shown that entrepreneurial leaders display particular behaviours and capabilities as they seek to draw agility from their organizations (Chaniago and Efawati, 2024; De Winnaar and Scholtz, 2020). These capabilities include the ability to adapt internal processes, to adapt the processes that connect the firm to its customers, and to adopt new technologies as conditions demand.

Although a considerable body of knowledge addresses entrepreneurial leadership within small firms and the way such leadership fosters organizational agility, there remains a shortage of evidence on the specific leader behaviours that correspond to the distinct dimensions of agility. Organizational agility encompasses operational agility, customer agility, and technological agility (Ibrahim and Rashid, 2019; Khalid and Firdaus, 2021). The leadership behaviours that relate to these dimensions include strategic flexibility, proactiveness, and learning orientation. Strategic flexibility refers to a leader's capacity to adapt strategy continually to the changes encountered in the industry, which in turn shapes operational agility (Brozovic, 2018; Hensellek, Kleine-Stegemann and Kollmann, 2023). Proactiveness is the behaviour through which leaders recognise shifts in customers and markets ahead of their competitors, which grants their firms the agility to adapt to those shifts (Sari and Ahmad, 2022; Jan and Maulida, 2022). Learning orientation, finally, allows small business leaders to acquire the knowledge needed to raise their technological agility, a capability that is crucial for survival in the information age (Indriyani, Utami and Afrianty, 2024; Alborathy, Masmoudi and Ismael, 2023).

The small firms examined in this research sit at the crossroads of local and global disruption and are representative of the broader challenges and opportunities that confront small business owners throughout Nigeria. By clarifying how the dimensions of entrepreneurial leadership shape the various facets of organizational agility among small firms in Kogi State, the study contributes to the scholarly literature while offering practical insight to owners and managers in the area. The study therefore investigated the effects of strategic flexibility on operational agility, of proactiveness on customer agility, and of learning orientation on technological agility among small firms in Kogi State. In doing so it seeks to address the existing gap in knowledge concerning the precise leader behaviours that enhance the agility of small firms.

2. Literature Review and Hypothesis Development

Entrepreneurial leadership has been recognised as a critical component of organizational agility within the context of small firms (Haque, 2025; Townsend, Hunt, McMullen and Sarasvathy,

2018; De Winnaar and Scholtz, 2020). Entrepreneurial leaders are characterised by a clear vision for the organization, a willingness to take calculated risks, and the proactive disposition required to navigate uncertain business environments (Chaniago and Efawati, 2024; Ibrahim and Rashid, 2019). Organizational agility is itself a multidimensional construct that embraces the operational, customer, and technological agility of a firm (Khalid and Firdaus, 2021; Appelbaum, Calla, Desautels and Hasan, 2017). Studies of these concepts indicate that the attributes of entrepreneurial leadership are associated with heightened agility through their capacity to increase flexibility, learning, and innovation within the firm (Hensellek, Kleine-Stegemann and Kollmann, 2023; Sari and Ahmad, 2022). Within small firms in emerging economies in particular, the relationship between entrepreneurial leadership and organizational agility is decisive for survival and growth (Jan and Maulida, 2022; Malibari and Bajaba, 2022; Khalid, Madhakomala and Purwana, 2020).

2.1 Strategic Flexibility and Operational Agility

Strategic flexibility has been identified as a critical antecedent of operational agility in small firms (Brozovic, 2018; Chanphati and Thosuwanhot, 2023; Hensellek, Kleine-Stegemann and Kollmann, 2023). It allows small firms to anticipate market dynamics and to reallocate resources or alter operational processes so as to maintain or improve performance (Ibrahim and Rashid, 2019; Khalid and Firdaus, 2021). Entrepreneurial leaders who exhibit strategic flexibility tend to operate processes that are faster, more responsive to market change, and more resilient to fluctuation (Sari and Ahmad, 2022; Haque, 2025). In dynamic and uncertain markets, small firms led by such leaders adjust their operations and supply chains more effectively and continue to meet their delivery commitments to customers (Alborathy, Masmoudi and Ismael, 2023; Appelbaum, Calla, Desautels and Hasan, 2017). Operational agility, on this account, emerges from the presence of strategic flexibility and the consequent adjustment of operational processes (Hensellek, Kleine-Stegemann and Kollmann, 2023; Khalid, Madhakomala and Purwana, 2020). The following hypothesis is therefore proposed.

H1: Strategic flexibility has an effect on operational agility.

2.2 Proactiveness and Customer Agility

Proactiveness is among the essential dimensions of entrepreneurial leadership, since it determines how forward-looking an organization is in the face of market trends (Haque, 2025; Townsend, Hunt, McMullen and Sarasvathy, 2018). Proactiveness allows entrepreneurs to anticipate customer demands and to respond to them appropriately (De Winnaar and Scholtz, 2020; Chaniago and Efawati, 2024). Customer agility, in turn, reflects how quickly a firm can respond to changes in customer demand and preference (Ibrahim and Rashid, 2019; Khalid and Firdaus, 2021). Leaders who foster a proactive culture enable their firms to gather customer feedback and to innovate and adapt their processes in order to satisfy evolving demands (Sari and Ahmad, 2022; Jan and Maulida, 2022). Proactiveness can, however, prove counterproductive when carried to excess, since a leader may then commit resources to anticipated needs that never materialise (Alborathy, Masmoudi and Ismael, 2023; Appelbaum, Calla, Desautels and Hasan, 2017). Small firms in dynamic markets such

as those of Kogi State nonetheless require proactiveness to secure the customer agility on which competitiveness depends (Hensellek, Kleine-Stegemann and Kollmann, 2023). Hence the hypothesis.

H2: Proactiveness has an effect on customer agility.

2.3 Learning Orientation and Technological Agility

Learning orientation is a foundational capability that allows organizations to keep learning, sharing, and applying knowledge so as to adapt to environmental change and to enable the agile adoption of technologies (Haque, 2025; Townsend, Hunt, McMullen and Sarasvathy, 2018). A learning orientation helps firms to overcome the knowledge constraints that often diminish their capacity to respond to uncertainty (De Winnaar and Scholtz, 2020; Chaniago and Efawati, 2024). Such a disposition is associated with the agile adoption of technologies in response to shifts in the environment or the market (Ibrahim and Rashid, 2019; Appelbaum, Calla, Desautels and Hasan, 2017). Entrepreneurial leadership is linked to these capabilities in that it strengthens the learning processes of the organization and channels what is learned toward the adoption of technology (Khalid and Firdaus, 2021; Khalid, Madhakomala and Purwana, 2020). Small and medium-sized firms that adopt a learning orientation enjoy greater success in adopting new technology, improving innovation, and building competitive advantage (Sari and Ahmad, 2022; Indriyani, Utami and Afrianty, 2024). Where focus and direction are lacking, however, the learning that a firm accumulates may translate into inefficient technology adoption (Hensellek, Kleine-Stegemann and Kollmann, 2023; Pauceanu, Rabie, Moustafa and Jiroveanu, 2021). The study therefore hypothesises the following.

H3: Learning orientation has an effect on technological agility.

Figure 1 distils the three hypotheses into a single conceptual schema. The diagram positions strategic flexibility, proactiveness, and learning orientation as the entrepreneurial leadership dimensions on the left, and operational, customer, and technological agility as the corresponding organizational agility dimensions on the right, with each hypothesised path mapping one leadership attribute to one facet of agility.

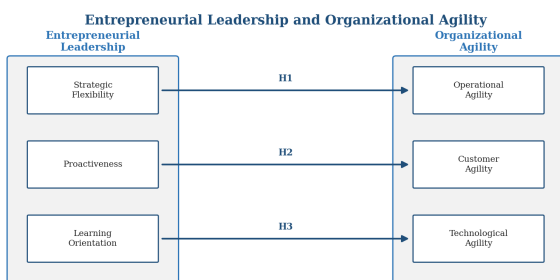


Figure 1. Conceptual framework linking entrepreneurial leadership dimensions to organizational agility

Figure 1: Conceptual framework linking the dimensions of entrepreneurial leadership to the dimensions of organizational agility. Source: Authors' conceptualisation.

3. Methodology

3.1 Research Design

The study adopted a survey research design. More precisely, it investigated the effect of entrepreneurial leadership on

organizational agility within small firms. The design supports the examination of the relationships that earlier studies have reported between leadership and agility in small firms, and it permits the collection of primary data from a large and dispersed population of owners and managers.

3.2 Population and Sampling

The population for the study comprised twelve thousand and seventy-eight small firms in Kogi State, Nigeria. Small firms are understood here as firms that employ a small number of people and record a relatively modest annual turnover. A stratified random sampling technique was used to draw firms from the retail, service, and manufacturing sectors, and the realised sample consisted of three hundred and fifty participants. The participants were the owners or managers of the firms, since they are the individuals best placed to speak to the agility of their organizations.

3.3 Data Collection Instrument

A questionnaire served as the instrument of data collection. It gathered information on respondent demographics, on entrepreneurial leadership, and on organizational agility. The items measuring strategic flexibility were adapted from Sari and Ahmad (2022) and Indriyani, Utami and Afrianty (2024), while those measuring proactiveness were adapted from Brozovic (2018) and Chanphati and Thosuwanchot (2023). The items measuring organizational agility drew on established scales for operational, customer, and technological agility developed by Ibrahim and Rashid (2019). All items were measured on a five-point Likert scale ranging from strongly disagree to strongly agree.

3.4 Measurement Validity and Reliability

The questionnaire items were adapted from prior academic studies and revalidated to confirm their suitability. A pilot study involving thirty entrepreneurs from other parts of Nigeria was conducted to test the items. Construct validity was assessed through factor analysis to ensure that the items loaded on their intended constructs, and internal consistency was evaluated through the Cronbach alpha coefficient, with a value of 0.70 or above taken as the threshold of acceptable reliability. The composite reliability and average variance extracted were computed to confirm convergent validity, following the criteria set out by Hair, Anderson, Babin and Black (2010). The average variance extracted was obtained as

$$AVE = (\sum \lambda^2) / n$$

where λ denotes the standardised outer loading of each indicator and n the number of indicators on the construct, while composite reliability was obtained as

$$CR = (\sum \lambda)^2 / [(\sum \lambda)^2 + \sum (1 - \lambda^2)]$$

The outcomes of these procedures are summarised in Table 1.

3.5 Data Analysis

The analysis of data was conducted with a statistical package, Amos and IBM SPSS version 25.0. The study employed both descriptive and inferential statistics. The descriptive statistics summarised the demographic profile of the respondents, while the inferential analysis rested on structural equation modelling, whose regression weights provided the test of the three hypotheses. The

standardised structural coefficient that expresses the effect of an exogenous construct on an endogenous construct takes the general form

$$\eta = \beta \xi + \zeta$$

where η denotes the endogenous latent variable, ξ the exogenous latent variable, β the standardised path coefficient, and ζ the structural disturbance term.

4. Data Analyses and Results

This section presents the analyses and the interpretation of the results, beginning with the assessment of the measurement model and proceeding through the demographic profile of respondents to the test of the structural hypotheses. The measurement model is examined first, in order to establish the validity and reliability of the constructs, after which the structural relationships specified in the three hypotheses are estimated and reported in turn.

4.1 Measurement Validity and Reliability

The measurement model was assessed for construct validity and reliability before the structural hypotheses were estimated. The indicator outer loadings, the average variance extracted, the composite reliability, and the Cronbach alpha coefficient were examined for each of the six constructs, namely strategic flexibility, proactiveness, learning orientation, operational agility, customer agility, and technological agility. The full set of estimates is presented in Table 1, which appears overleaf, and the interpretation of those estimates follows immediately beneath the table.

Table 1. Measurement validity and reliability

Construct	Indicator	Loading	AVE	CR	Cronbach α
Strategic flexibility	SFT1	0.751	0.544	0.738	0.720
	SFT2	0.724			
	SFT3	0.731			
	SFT4	0.759			
	SFT5	0.722			
Proactiveness	PRO1	0.811	0.599	0.774	0.729
	PRO2	0.705			
	PRO3	0.762			
	PRO4	0.735			
	PRO5	0.848			
Learning orientation	LON1	0.721	0.570	0.755	0.735
	LON2	0.749			
	LON3	0.724			
	LON4	0.798			
	LON5	0.781			
Operational agility	OPA1	0.729	0.533	0.730	0.718
	OPA2	0.723			
	OPA3	0.729			
	OPA4	0.750			
	OPA5	0.718			
Customer agility	CUA1	0.781	0.635	0.797	0.753
	CUA2	0.810			
	CUA3	0.828			
	CUA4	0.813			
	CUA5	0.749			
Technological agility	THA1	0.826	0.600	0.775	0.744
	THA2	0.780			
	THA3	0.730			
	THA4	0.742			
	THA5	0.791			

Estimation performed in Amos and IBM SPSS 25.0. AVE = average variance extracted; CR = composite reliability. Source: Field survey, 2025.

Table 1 reports the indicator outer loadings together with the average variance extracted, the composite reliability, and the Cronbach alpha coefficient for each construct. The loadings exceed 0.70 throughout, ranging between 0.705 and 0.848, which indicates that all indicators represent their constructs adequately. The average variance extracted ranges from 0.533 to 0.635 and so exceeds the minimum of 0.50 required for convergent validity. The composite reliability ranges from 0.730 to 0.797 and the Cronbach alpha from 0.718 to 0.753, both comfortably above the 0.70 threshold. The measurement model therefore exhibits satisfactory convergent validity and internal consistency, which supports the suitability of the constructs for structural analysis.

4.2 Demographic Characteristics

Table 2. Demographic characteristics of respondents

Attribute	Category	Frequency	Per cent
Gender	Female	175	50.00
	Male	175	50.00
Age	Below 20 years	59	16.86
	20 to 25 years	98	25.43
	26 to 31 years	121	34.57
	32 to 37 years	69	19.71
	Above 38 years	3	0.86
Qualification	OND or equivalent	85	24.29
	HND or B.Sc	112	32.00
	MBA or M.Sc	75	21.43
	PhD	78	22.29
Experience	Below 5 years	29	8.29

Attribute	Category	Frequency	Per cent
	6 to 9 years	154	44.00
	10 to 13 years	120	34.29
	Above 13 years	47	13.43

Source: Field survey, 2025.

Table 2 shows a balanced participation between female and male respondents, each accounting for 50 per cent of the sample. With respect to age, 16.86 per cent of respondents were below 20 years, 25.43 per cent fell between 20 and 25 years, 34.57 per cent between 26 and 31 years, 19.71 per cent between 32 and 37 years, and 0.86 per cent were above 38 years. In terms of qualifications, 24.29 per cent held an OND or its equivalent, 32.00 per cent an HND or B.Sc, 21.43 per cent an MBA or M.Sc, and 22.29 per cent a PhD. As regards experience, 8.29 per cent reported fewer than 5 years of entrepreneurial leadership experience, 44.00 per cent reported between 6 and 9 years, 34.29 per cent between 10 and 13 years, and 13.43 per cent more than 13 years.

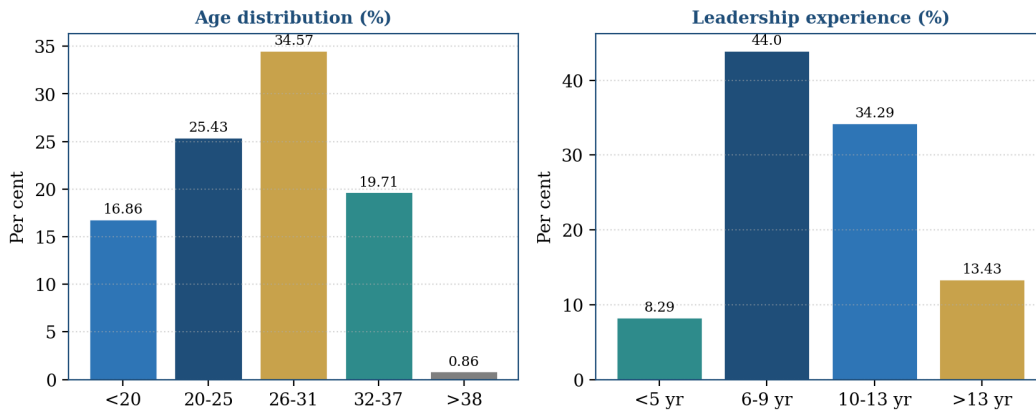


Figure 2: Age and entrepreneurial leadership experience profile of respondents. Source: Field survey, 2025.

Figure 2 renders the age and experience distributions of Table 2 in graphical form. The respondent pool is concentrated in the productive middle years, with the 26 to 31 band the single largest age group, and it is experientially seasoned, since more than nine in ten respondents report at least six years of leadership experience. The profile lends weight to the responses, since the participants are well placed to assess the agility of the firms they lead.

4.3 Structural Model and Covariance Assessment

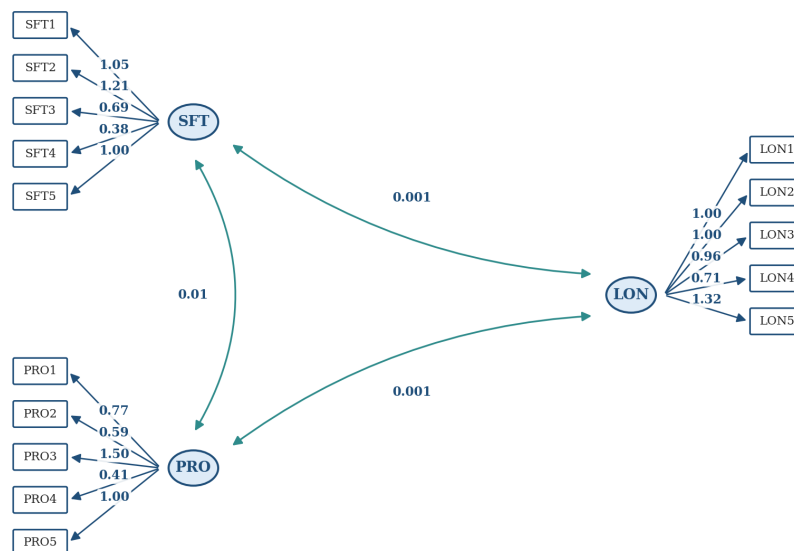


Figure 3: Structural equation model on the latent variables, showing the measurement paths and the inter-construct covariances. Source: Amos and IBM SPSS 25.0.

Figure 3 presents the full measurement model relating the latent constructs of strategic flexibility, proactiveness, and learning orientation to their observed indicators, together with the estimated covariances among the constructs. The estimated covariances among strategic flexibility, proactiveness, and learning orientation are all small, lying well below the value of 0.5 that would signal a problematic association,

which is acceptable on the criteria of Hubert and Debruyne (2010) and Qiu and Liyanage (2019).

Table 3. Covariances on the latent variables

Path	Estimate	S.E.	C.R.	P-value
SFT ↔ PRO	0.001	0.064	0.019	0.985
SFT ↔ LON	0.013	0.072	0.174	0.862
PRO ↔ LON	0.004	0.046	0.076	0.939

Source: Amos and IBM SPSS 25.0.

Table 3 indicates that there is no strong covariance between strategic flexibility and proactiveness, given an estimate of 0.001 and a probability value of 0.985, which exceeds 0.05. The covariance between strategic flexibility and learning orientation is 0.013, with a probability value of 0.862, and the covariance between proactiveness and learning orientation is 0.004, with a probability value of 0.939. Each construct therefore operates independently, and there is no evidence of a significant association among them within the model. This independence is methodologically welcome, since it reduces the risk of multicollinearity in the structural estimation that follows.

4.4 Model Fit

Table 4. Model fit indices

Category	Index	Value	Category	Index	Value
Absolute	RMR	0.075	Baseline	NFI	0.971
	GFI	0.941		RFI	0.965
	AGFI	0.918		IFI	0.986
	PGFI	0.682		TLI	0.983
Parsimony	PRATIO	0.829		CFI	0.986
	PNFI	0.805	RMSEA	RMSEA	0.050
	PCFI	0.817		LO 90	0.038
Chi-square	χ^2 (df)	164.134 (87)		HI 90	0.062
	P-value	0.01		PCLOSE	0.462

Source: Amos and IBM SPSS 25.0.

Table 4 shows an acceptable and indeed excellent fit for the model under consideration. The chi-square statistic is significant, with a value of 164.134 on 87 degrees of freedom at a probability of 0.01, which is common in structural models estimated on large samples and which therefore warrants attention to the complementary fit indices. The root mean square residual of 0.075 is acceptable, while the goodness of fit index of 0.941 and the adjusted goodness of fit index of 0.918 are high. The baseline comparison statistics are likewise strong, with a normed fit index of 0.971, a relative fit index of 0.965, an incremental fit index of 0.986, a Tucker and Lewis index of 0.983, and a comparative fit index of 0.986, all close to unity. The root mean square error of approximation of 0.050 indicates a good fit and lies within a close confidence interval of 0.038 to 0.062, while a PCLOSE value of 0.462, which exceeds 0.05, confirms the same conclusion. The parsimony-adjusted indices, namely a parsimony goodness of fit index of 0.682, a parsimony normed fit index of 0.805, and a parsimony comparative fit index of 0.817, are also acceptable.

4.5 Test of Hypotheses

The three structural hypotheses were tested through the regression weights of the structural equation model, and the path estimates are reported in turn below, each accompanied by its corresponding diagram.



Figure 4: Structural model of strategic flexibility and operational agility, with a standardised path estimate of 0.87. Source: Amos and IBM SPSS 25.0.

Figure 4 traces the path from strategic flexibility to operational agility, with a standardised estimate of 0.87, which conveys the strength of the influence that strategic flexibility exerts over operational agility. The accompanying regression weights are reported in Table 5.

Table 5. Regression weights on strategic flexibility and operational agility

Path	Estimate	S.E.	C.R.	P-value
OPA ← SFT	0.873	0.031	28.457	***

*** denotes significance at 0.000. Model fit: NFI = 0.984; RFI = 0.979; IFI = 0.989; TLI = 0.985; CFI = 0.989; RMSEA = 0.083; RMR = 0.047; chi-square = 114.840. Source: Amos and IBM SPSS 25.0.

The effect of strategic flexibility on operational agility appears in Table 5. The estimate of 0.873 is large and positive, which shows that as strategic flexibility improves, operational agility improves with it. The probability value is below 0.001 and the critical ratio of 28.457 is substantial, both of which affirm the significance of the effect. Strategic flexibility therefore has a strong and significant positive effect on operational agility, and the supporting fit indices, with a normed fit index of 0.984, a relative fit index of 0.979, an incremental fit index of 0.989, a Tucker and Lewis index of 0.985, and a comparative fit index of 0.989, all surpass the 0.90 threshold. Hypothesis H1 is accordingly supported.

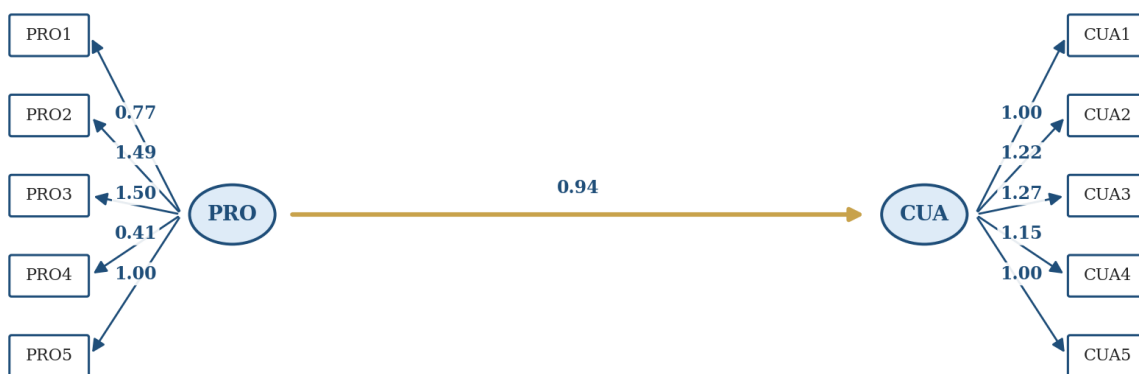


Figure 5: Structural model of proactiveness and customer agility, with a standardised path estimate of 0.94. Source: Amos and IBM SPSS 25.0.

Figure 5 traces the path from proactiveness to customer agility, with a standardised estimate of 0.94, which conveys the strength of the influence of proactiveness over customer agility. The corresponding regression weights are reported in Table 6.

Table 6. Regression weights on proactiveness and customer agility

Path	Estimate	S.E.	C.R.	P-value
CUA ← PRO	0.945	0.078	12.142	***

*** denotes significance at 0.000. Model fit: NFI = 0.973; RFI = 0.964; IFI = 0.983; TLI = 0.977; CFI = 0.983; RMSEA = 0.069; RMR = 0.026; chi-square = 91.185. Source: Amos and IBM SPSS 25.0.

Table 6 reveals that proactiveness significantly affects customer agility, with a standardised estimate of 0.945 at a probability value below 0.01. As proactiveness increases, customer agility increases accordingly. The result is statistically significant, since the probability value falls below 0.001 and the critical ratio is high. The model returns a good fit, with a normed fit index of 0.973, a relative fit index of 0.964, an incremental fit index of 0.983, a Tucker and Lewis index of 0.977, and a comparative fit index of 0.983, each of which meets the 0.90 threshold. Hypothesis H2 is therefore supported.



Figure 6: Structural model of learning orientation and technological agility, with a standardised path estimate of 0.95. *Source: Amos and IBM SPSS 25.0.*

Figure 6 traces the path from learning orientation to technological agility, with a standardised estimate of 0.95, which conveys the strength of the influence of learning orientation over technological agility. The corresponding regression weights are reported in Table 7.

Table 7. Regression weights on learning orientation and technological agility

Path	Estimate	S.E.	C.R.	P-value
THA ← LON	0.951	0.019	49.422	***

*** denotes significance at 0.000. Model fit: NFI = 0.990; RFI = 0.987; IFI = 0.995; TLI = 0.993; CFI = 0.995; RMSEA = 0.053; RMR = 0.036; chi-square = 66.959. *Source: Amos and IBM SPSS 25.0.*

Table 7 shows that learning orientation has a positive effect on technological agility, with a standardised estimate of 0.951 at a probability value below 0.01. The effect is statistically significant, and the critical ratio of 49.422 indicates that it is very strong. Learning orientation therefore plays an important part in the improvement of technological agility, and the model displays a good fit, with a normed fit index of 0.990, a relative fit index of 0.987, an incremental fit index of 0.995, a Tucker and Lewis index of 0.993, and a comparative fit index of 0.995. Hypothesis H3 is accordingly supported.

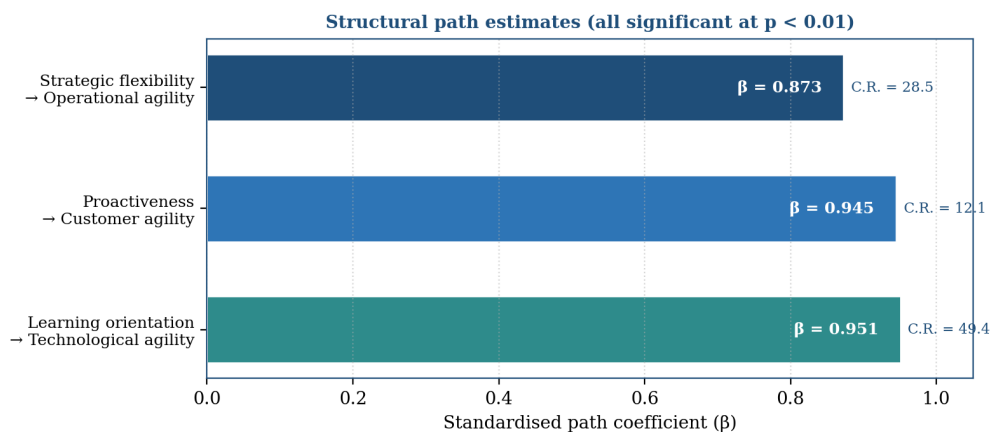


Figure 7: Summary of the three structural path estimates, each significant at a probability below 0.01. *Source: Authors' compilation from Tables 5 to 7.*

Figure 7 assembles the three structural estimates in a single comparison. The three paths are uniformly strong and positive, with learning orientation to technological agility marginally the largest in standardised terms and strategic flexibility to operational agility the most precisely estimated, as the critical ratios attest. The figure makes plain that each dimension of entrepreneurial leadership maps onto its corresponding dimension of organizational agility with a substantial and significant coefficient.

5. Discussion

The findings demonstrate that entrepreneurial leadership exerts a significant and positive effect on organizational agility, and that this influence operates through the bearing that particular leadership attributes have on the agility of the firm. The first result shows that strategic flexibility has a positive effect on operational agility. Entrepreneurial leaders who can adapt their strategies and operational requirements enable their organizations to improve their processes and to become more efficient in their operations. The result is consistent with earlier work that has documented the influence of strategic flexibility on operational agility and on the broader performance that follows from it (Hensellek, Kleine-Stegemann and Kollmann, 2023; Brozovic, 2018; Chanphati and Thosuwanchot, 2023; Ibrahim and Rashid, 2019). The magnitude of the coefficient, taken together with its very high critical ratio, suggests that in the resource-constrained setting of Kogi State small firms it is the leader's capacity to reconfigure strategy, rather than the abundance of resources, that drives the firm's ability to adjust its operations under pressure.

The second result establishes that proactiveness has a positive effect on customer agility. By anticipating customer demands, proactive leaders allow their firms to respond effectively and to serve customers more efficiently. This accords with research showing that the proactive disposition of entrepreneurs and their leaders enhances the customer experience and the competitiveness of the organizations concerned (Fontana and Musa, 2017; Chaniago and Efawati, 2024; Ibrahim and Rashid, 2019). The result also carries a cautionary edge that the literature has identified, since proactiveness pursued without discipline can commit a firm to anticipated needs that fail to materialise. The strength of the association observed here implies that, within the markets studied, the benefits of anticipation clearly outweigh this risk, although the boundary at which proactiveness becomes wasteful remains an open question for firms with thinner margins.

The third result reveals that learning orientation has a positive effect on technological agility. Leaders who cultivate a focus on learning enable their organizations to adopt and exploit new technologies more rapidly. The finding is supported by studies that have shown the effect of the learning attribute of entrepreneurial leaders on the technological agility, innovation, and profitability of their firms (Townsend, Hunt, McMullen and Sarasvathy, 2018; De Winnaar and Scholtz, 2020; Sibeko and Barnard, 2020). It is worth observing that the covariance analysis reported earlier found the three leadership constructs to be largely independent of one another, which means that learning orientation contributes to technological agility through a channel distinct from those through which strategic flexibility and proactiveness operate. This independence strengthens the case for treating entrepreneurial leadership as a genuinely multidimensional construct rather than a single undifferentiated trait.

Taken together, these findings indicate that the effect of entrepreneurial leadership on organizational agility flows through the influence of specific attributes upon specific dimensions of agility. The strategic flexibility of leaders raises operational agility, their proactiveness raises customer agility, and their learning orientation raises technological agility. The pattern supports the view that it is these adaptive attributes, rather than the risk-taking

that is also associated with entrepreneurial leaders, that allow organizations to exhibit agility (Chaniago and Efawati, 2024; Khalid and Firdaus, 2021; Jan and Maulida, 2022). In the dynamic environments in which most firms now operate, those whose leaders can adapt to changing requirements, take the initiative to meet the demands of their markets and customers, and pursue new ways of improving the organization will display the agility needed to respond to change. The study thereby contributes to the literature on the precise mechanisms through which entrepreneurial leadership shapes organizational agility (Sari and Ahmad, 2022; Malibari and Bajaba, 2022; Townsend, Hunt, McMullen and Sarasvathy, 2018).

6. Conclusion and Recommendations

Entrepreneurial leadership contributes significantly to the strengthening of organizational agility, yet its contribution arises not from risky behaviour but from leadership traits such as strategic flexibility, proactiveness, and learning orientation, each of which advances a distinct dimension of agility. The study found that strategic flexibility relates positively to operational agility, that proactiveness relates positively to customer agility, and that learning orientation relates positively to technological agility. Organizational agility, on this evidence, is the product of adaptability, anticipation, and a commitment to learning rather than of risk appetite as such.

On the strength of these findings, it is recommended that organizations seeking to raise their agility develop in their leaders capabilities that extend beyond risk-taking. Leaders should be trained in strategic flexibility so that they acquire the ability to adapt strategy and to reconfigure resources as conditions change. Proactiveness should be encouraged so that leaders anticipate market dynamics and respond effectively to customer demand. Finally, a learning orientation should be fostered, in which leaders and employees continually acquire new knowledge, experiment with emerging technologies, and build the skills on which technological agility depends.

6.1 Contributions to Knowledge

The study extends existing knowledge by treating entrepreneurial leadership as a multidimensional construct comprising strategic flexibility, proactiveness, and learning orientation. It broadens the understanding of organizational agility by examining its operational, customer, and technological dimensions together, which yields a more complete account of how entrepreneurial leadership shapes organizational resilience. By drawing its evidence from the Nigerian business environment, where research on the relationship between entrepreneurial leadership and organizational agility remains limited, the study offers insight that work conducted in developed economies may not fully capture, and it thereby enriches entrepreneurial leadership theory while deepening the understanding of organizational agility.

6.2 Suggestions for Future Studies

Future research could examine whether the relationships observed here hold across different sectors and geographic contexts within Nigeria, or whether they are particular to the resource-constrained environment of small firms in Kogi State. A qualitative study exploring how entrepreneurial leaders in the state conceptualise

and deploy learning as a strategic tool would add a contextual depth that the present quantitative model cannot supply, and a longitudinal design would help to establish the direction of causation that a cross-sectional survey can only infer.

Declarations

Author Contributions

Simon Sule Adomokhai and Akeem Tunde Nafiu conceived the research and drafted the protocol. Danlami Joseph Aduku and Ibrahim Olawale Nafiu developed the literature. The methodology and data analyses were handled by Akeem Tunde Nafiu, and all authors read and approved the final manuscript.

Conflict of Interest

The authors declare that there is no conflict of interest.

Funding

The authors received no funding from any institution for this research.

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