

The Influence of Institutional Environment and Innovation Capacity on Supply Chain Performance and Competitive Advantage: Empirical Evidence from Ghana

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ABSTRACT

Purpose – This study examines the extent to which institutional environment influences innovation capacity, supply chain performance, and competitive advantage among small and medium enterprises (SMEs) in Ghana, drawing insights from institutional theory.

Design/methodology/approach – The study employed a quantitative research design with survey strategy across five regions of Ghana (Ashanti, Western, Eastern, Northern, and Greater Accra). Primary data was collected from 250 SMEs using a structured questionnaire instrument. Descriptive and inferential statistical tools including hierarchical multiple linear regression were used to analyze the data.

Findings – The results reveal that normative institutional systems exert a significant positive influence on innovation capacity among SMEs. Both normative systems and supply chain innovation positively and significantly influence supply chain performance. Furthermore, firm performance and supply chain innovativeness positively influence competitiveness. However, regulatory and cognitive institutional components showed statistically non-significant effects on innovation capacity and performance.

Originality/value – This study extends institutional theory to the supply chain context in sub-Saharan Africa, providing empirical evidence on how normative institutional pressures shape innovation and performance outcomes among Ghanaian SMEs.

INTRODUCTION

The shape and pace of entrepreneurship in emerging and developing economies is significantly determined by the dominant influence of the institutional environment (Plata et al., 2025; Ramawat & Nayak, 2026). Favorable institutional environments make entrepreneurial endeavors possible, particularly in developing economies (Ghura, 2024; Plata et al., 2026; Nguimkeu, 2025). Conversely, non-conducive environments such as those that characterize developing economies severely constrain the entry and growth of new and small firms (Dela Cruz et al., 2025; Hallward-Driemeier & Pritchett, 2026; Ires, 2024; World Bank, 2026). For small and medium enterprises (SMEs), which are widely regarded as the engine of economic growth, understanding how institutional factors drive innovation and performance outcomes remains critically important (Ghura, 2024; Plata et al., 2026; Nguimkeu, 2025).

Institutions can be described as relatively widely diffused practices, technologies, or rules of social interaction that have become entrenched such that it is costly to choose alternative practices or rules (Kostova et al., 2020; Glynn & D'Aunno, 2023; Aghajani et al., 2026). Building on foundational work, institutional environment is conceptualized as comprising three pillars: regulatory (formally codified laws and enforcement mechanisms), normative (standards and commercial conventions established by professional and trade associations), and cognitive (axiomatic beliefs about expected standards of behavior specific to a culture). These institutional dimensions collectively shape organizational behavior by establishing the basis for production and distribution, and organizations must conform to them to receive support and legitimacy (Scott, 1995; Li et al., 2020; Maurer et al., 2022; Meliou & Urbano, 2025).

The importance of institutional environment for unlocking entrepreneurial phenomena prompted Aldrich and Wiedenmayer (2019) to assert that it could create or destroy entrepreneurship in a country, particularly among SMEs. Baumol (1996) and Li et al. (2020) added that institutional environment can promulgate productive, unproductive, or even destructive entrepreneurship. In an era where competition has shifted from company-versus-company to supply chain-versus-supply chain (Chopra & Meindl, 2004; Belhadi et al., 2021), firms particularly SMEs need to be innovative to compete favorably. Innovation, defined as the generation, acceptance, and implementation of new ideas, processes, products, or services (Thompson, 1965; Kraus et al., 2021; Najafi-Tavani et al., 2022), has been consistently linked to higher firm performance (Calantone et al., 2002; YuSheng & Ibrahim, 2020; Ferreira et al., 2021; Kraus et al., 2025), as it enables firms to offer valuable, rare, and difficult-to-imitate differentiated products (Barney, 1991; Anwar & Clauß, 2021).

Prior studies have highlighted the institutional environment's impact on innovation and firm performance in emerging economies such as Russia, Brazil, China, and Thailand (Chadee & Roxas, 2013; Donbesuur et al., 2020; Odei, 2024; Persaud & Zare, 2023; Yaibuathet et al., 2008). However, studies with specific emphasis on how institutional environment drives innovation, supply chain performance, and competitive advantage appear underexplored, particularly in the Ghanaian context. Specifically, what remains unclear is which institutional pillars regulatory, normative, or cognitive most strongly influence SME innovation outcomes in weak institutional environments, and whether innovation capacity serves as a mechanism through which institutional pressures translate into performance gains. Existing Ghanaian studies have examined institutional effects on agribusiness performance (Osei et al., 2024), networking capability and sustainability (Mensah et al., 2025), and absorptive capacity and competitiveness (Sulemana et al., 2026), but none have systematically tested the mediating role of innovation capacity in the institutional environment-supply chain performance-competitive advantage nexus. Given the critical role of SMEs in Ghana's economy, which contributes over 60% of GDP and 80% of employment (Ghana Statistical Service, 2025), understanding how institutional factors shape their innovation and supply chain capabilities is both theoretically and managerially imperative.

This study addresses this gap by examining how the institutional environment influences innovation capacity, supply chain performance, and competitive advantage among SMEs in Ghana. Specifically, it seeks to: (a) determine the relationship between institutional environment dimensions and supply chain innovation in Ghana; (b) examine the mediating role of innovation capacity in the institutional environment-supply chain performance relationship; and (c) examine the relationship between institutional environment, innovation capacity, supply chain performance, and competitive advantage.

The study contributes to theory by extending institutional theory to the supply chain domain in a sub-Saharan African context, where institutional voids and market imperfections present unique challenges for SME development. Practically, the findings offer guidance to managers and policymakers on designing supportive institutional frameworks that foster innovation and enhance supply chain competitiveness.

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Theoretical Foundations

Institutional Theory

Institutional theory provides the foundational framework for understanding how external environmental factors shape organizational behavior and outcomes. Scott (1995) conceptualized institutional environment as comprising three pillars that exert distinct pressures on organizations:

Regulatory institutions refer to formally codified, enacted, and enforced structures of laws in a community, society, or nation. These institutions exert coercive pressure through rules, laws, and sanctions that constrain organizational behavior and establish the legal framework within which firms must operate (Maurer et al., 2022; Osei et al., 2024; Zhuang & Sun, 2024). Regulatory institutions shape innovation by establishing property rights, enforcing contracts, and setting compliance standards that firms must meet to operate legally.

Normative institutions manifest in standards and commercial conventions such as those established by professional and trade associations, and business groups. These institutions exert normative pressures through professional standards, industry norms, and expectations about appropriate behavior (Maurer et al., 2022; Osei et al., 2024). Normative institutions influence innovation by establishing industry's best practices, facilitating knowledge transfer through professional networks, and creating expectations about innovation as a legitimate organizational activity.

Cognitive institutions are axiomatic beliefs about expected standards of behavior that are specific to a culture, typically learned through social interactions (Maurer et al., 2022; Osei et al., 2024; Zhuang & Sun, 2024). These institutions exert mimetic pressures through shared mental models, cultural scripts, and taken-for-granted assumptions that shape how organizations interpret their environment and make strategic decisions. Cognitive institutions influence innovation by shaping the cultural acceptance of innovation as a desirable activity and by providing interpretive frameworks for understanding market opportunities and threats.

These institutions exert coercive, normative, and mimetic pressures on organizations, shaping their strategic choices and operational practices (Li et al., 2020; Maurer et al., 2022; Alvarez et al., 2024). Following DiMaggio and Powell (1983), mimetic pressures the tendency to imitate successful peers under conditions of uncertainty are often treated as a distinct mechanism in institutional analysis, particularly relevant in emerging economies where environmental uncertainty is high. In the present study, mimetic pressure is operationalized through items measuring firms' tendency to copy competitors' activities, customer expectations that firms meet operational standards, and customer switching behavior when service expectations are not met. This conceptualization distinguishes mimetic pressures from cognitive institutions, which capture culturally embedded beliefs and taken-for-granted assumptions rather than imitative behavior.

Resource-Based View

The Resource-Based View (RBV) posits that competitive advantage lies primarily in the application of valuable tangible or intangible resources at the firm's disposal (Barney, 1991; Wernerfelt, 1984; Ferreira et al., 2021). Intangible resources such as brand reputation, knowledge, and processes are usually immobile and difficult to imitate, making them critical sources of sustainable competitive advantage (Kraus et al., 2022). The VRIN framework (valuable, rare, inimitable, non-substitutable) provides criteria for identifying resources capable of generating sustained competitive advantage (Barney, 1991; Anwar et al., 2021). Innovation capacity, as a firm-specific capability, qualifies as such a resource, making it a critical driver of competitive advantage.

Porter's Generic Competitive Strategies

Porter (1985) identified three generic strategies for achieving above-average performance: cost leadership (becoming the low-cost producer in an industry), differentiation (creating unique products valued by buyers), and focus (serving a narrow competitive scope within an industry). These strategies provide a framework for understanding how SMEs position themselves in competitive markets (Mikalef & Krogstie, 2020; Ismail et al., 2023). The present study integrates these perspectives to examine how innovation capacity enables SMEs to pursue cost leadership and differentiation strategies, thereby achieving competitive advantage.

Empirical Review

Recent empirical studies have advanced understanding of institutional influences in the Ghanaian context. Osei et al. (2024) investigated the impact of regulatory, normative, and cognitive institutional pressures on rural agribusiness entrepreneurial opportunities and performance in Ghana, analyzing data from 246 maize farm entrepreneurs using PLS-SEM. Their findings showed that regulatory and cognitive institutions have positive significant influence on opportunity recognition and exploitation strategies. Similarly, Osei et al. (2024) examined institutional support on farm entrepreneurial performance with 371 farm enterprises, confirming that regulatory, normative, and cognitive institutions have positive and significant indirect effects on farm business performance through the mediating role of entrepreneurial orientation.

Mensah et al. (2025) explored institutional networking capability as a catalyst for sustainable supply chains in Ghana's manufacturing sector. Using CB-SEM with 263 owners and managers, they found that institutional networking capability strengthens the indirect effect of green human resource management on supply chain sustainability, demonstrating the crucial role of external networks in achieving environmental goals. This finding aligns with the normative dimension of institutional theory, where professional networks and industry associations facilitate knowledge transfer and capability development.

Sulemana et al. (2026) examined absorptive capacity's role in strengthening entrepreneurial innovation and agribusiness competitiveness among food processing SMEs in Ghana. Drawing on data from 170 agro-business firms analyzed with Smart PLS-SEM, they found that an entrepreneur's ability to learn and adapt significantly influences capacity to innovate and develop competencies that enhance competitiveness. This study highlights how cognitive capabilities the third institutional pillar mediate innovation outcomes.

From the technology adoption perspective, Appiah and Agblewornu (2025) studied FinTech adoption among MSMEs in Ghana, finding that perceived ease of use is the strongest antecedent of adoption, with deeper organizational integration of FinTech associated with competitive advantage through gains in cost efficiency, operational agility, and service differentiation. This study integrates institutional theory with technology acceptance models, showing how digital capabilities translate into strategic advantage.

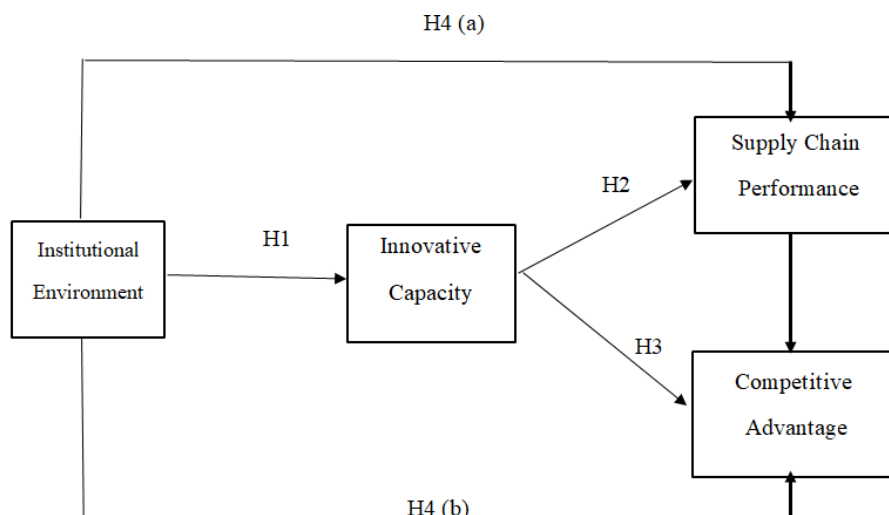
Research Gap

While these studies have advanced understanding of institutional influences in Ghana, several gaps remain. First, none has systematically examined the relative influence of all three institutional pillars regulatory, normative, and cognitive alongside mimetic pressures on SME innovation and supply chain performance simultaneously. Second, the mediating role of innovation capacity in translating institutional pressures into supply chain and competitive outcomes has not been empirically tested. Third, prior studies have focused on specific sectors (agribusiness, manufacturing) without examining the generalizability of findings across SME sectors. This study addresses these gaps by testing the direct effects of institutional dimensions on innovation capacity and performance, and the mediating role of innovation capacity in these relationships.

Conceptual Model and Hypothesis Development

Based on the theoretical and empirical foundations, this study hypothesizes that institutional environment influences firm outcomes through multiple pathways. Building on Scott's (1995) institutional pillars, favorable regulatory, normative, and cognitive environments should facilitate innovation activity by reducing uncertainty and providing legitimacy for innovative practices. Recent research has confirmed that cognitive institutions increase farm-level entrepreneurial orientation (Osei et al., 2024) and that absorptive capacity mediates innovation-competitiveness relationships (Sulemana et al., 2026).

Figure 1: Hypothetical Model of the Study



Institutional Environment and Innovation Capacity

The relationship between institutional environment and SME innovation capacity has received considerable empirical attention. Institutional theory distinguishes among three pillars regulative, normative, and cultural-cognitive each hypothesised to shape innovation differently (Scott, 2013). A systematic review of 141 empirical studies (Kryeziu et al., 2024) confirms that all three pillars influence entrepreneurship, but their effects vary by institutional quality and sector.

Convergent evidence supports a positive role for normative and cultural-cognitive institutions. Raimi et al. (2024), surveying 316 MSMEs in Kosovo, found that normative and cognitive institutions positively influenced entrepreneurial behaviours, while regulative institutions showed no significant effect. Similarly, Bağış et al. (2024) reported that entrepreneurial cognition, a cognitive institutional dimension, significantly shapes strategic entrepreneurial behaviour, moderated by regulatory frameworks. In the African context, Osei et al. (2024) demonstrated that normative institutions positively influence rural agribusiness performance through entrepreneurial orientation in Ghana. Nwoba et al. (2025), studying 195 Ghanaian SMEs, found that government institutional stimulus positively relates to SME innovativeness, mediated by digital technology adoption. Gao et al. (2025) further showed that coercive and mimetic pressures stimulate open innovation in Chinese SMEs through absorptive capacity.

Contrasting evidence emerges regarding regulative institutions. While Gao et al. (2025) found positive coercive effects, Raimi et al. (2024) could not detect significant regulative effects and noted that when rational decision making interacts with regulatory institutions, the effect becomes negative. In transition economies, Abid et al. (2025) reported that only normative and cognitive pillars had significant effects. Edeh et al. (2024), analysing 8,466 SMEs across eleven Sub-Saharan African countries, found that domestic regulatory weaknesses stifle innovation, but exporting and international quality certifications market-based mechanisms compensate for institutional voids. Yu et al. (2025) further revealed that entrepreneurial bricolage positively affects disruptive innovation, with institutional voids moderating this relationship, suggesting that weak institutions do not uniformly suppress innovation but instead shape how SMEs innovate.

Divergences also appear in normative institutional effects. Gao et al. (2025) found that normative pressures can drive compliance, potentially limiting knowledge transformation into innovation, whereas Raimi et al. (2024) and Osei et al. (2024) reported uniformly positive effects. Urbano et al. (2026) caution that there is no consensus on measuring normative and cultural-cognitive dimensions, which may explain inconsistent findings. Contextual moderators, including economic development level, sector, firm age, and international orientation, significantly influence which institutional pillars matter (Edeh et al., 2024).

Therefore, the hypothesis that the institutional environment positively influences innovation capacity among SMEs is broadly supported by empirical evidence from 2020 to 2025, but with critical qualifications: normative and cultural-cognitive pillars show consistent positive effects across diverse contexts, while regulative institutions exhibit context-dependent influence, sometimes positive, sometimes null or negative. Institutional voids do not uniformly negate this relationship; rather, they moderate how and through which mechanisms institutions affect SME innovation.

H1a. Regulative institutions positively influence innovation capacity among SMEs.

H1b. Normative institutions positively influence innovation capacity among SMEs.

H1c. Cognitive institutions positively influence innovation capacity among SMEs.

H1d. Mimetic pressures positively influence innovation capacity among SMEs.

Innovation Capacity and Supply Chain Performance

A substantial and growing body of research demonstrates that innovation capacity serves as a fundamental driver of supply chain performance across diverse contexts. Kim et al. (2024), employing structural equation modelling

on data from 258 Korean SMEs, established that both process and product innovations positively impact supply chain strategic fit, which in turn significantly enhances SME performance. This finding is reinforced by Arsawan et al. (2023), who demonstrated among Chinese manufacturing SMEs that innovation mediates the relationship between supply chain resilience and organizational performance, with information sharing acting as a critical moderator that strengthens this mediated pathway. In the Egyptian context, Abdelaziz et al. (2023) revealed that supply chain learning capabilities positively affect both product and process innovation, directly linking innovation capacity to enhanced supply chain outcomes.

The magnitude of the innovation effect on supply chain performance is particularly striking: Sang et al. (2024), analysing 1,861 Chinese SMEs, found that absorptive capacity a core component of innovation capacity partially mediates both customer and supplier participation on product and process innovation performance. Abourokbah et al. (2023) further quantified this relationship, demonstrating that absorptive capacity positively and significantly impacts supply chain agility and resilience, which in turn partially mediate the relationship between absorptive capacity and supply chain innovation performance among 116 Saudi Arabian firms.

Contrasting findings have emerged regarding innovation type and environmental conditions. Kim et al. (2024) reported that environmental uncertainty strengthens the positive effect of process innovation on supply chain strategic fit but simultaneously weakens the positive impact of product innovation. This non-monotonic contingency effect suggests that in volatile environments, incremental process improvements outperform radical product innovation in enhancing supply chain outcomes. Tobing and Santosa (2025) found that while absorptive capacity directly improves supply chain innovation performance among Indonesian manufacturing firms, the indirect pathway through supply chain resilience was non-significant, suggesting that resilience-mediated pathways may be less salient in certain manufacturing contexts. From the sustainability perspective, Zailani et al. (2024), analysing 231 Malaysian manufacturing firms, demonstrated that sustainable innovation and disruptive innovation positively impact sustainable supply chain performance, with supply chain clockspeed moderating these relationships.

Therefore, the hypothesis that innovation capacity positively influences supply chain performance is robustly supported across geographical contexts. However, the strength of this positive influence is contingent on contextual factors including environmental uncertainty, the type of innovation pursued, and the specific mediating pathways examined.

H2. Innovation capacity positively influences supply chain performance.

Innovation Capacity and Competitive Advantage

A robust body of empirical research has consistently demonstrated that innovation capacity serves as a fundamental driver of competitive advantage for SMEs. Alshahrani et al. (2024), employing structural equation modelling on data from 206 Saudi Arabian SMEs, established that intellectual capital significantly and directly enhances competitive advantage, with innovation capability serving as a complementary partial mediator. In the Nigerian context, Otache (2024) analysed data from 159 SMEs and found that innovation capability positively affects SME performance, with competitive advantage serving as a significant mediator. From the MSME perspective in Indonesia, Abdurrasyid and Praswati (2023), studying 100 creative industry MSMEs, confirmed that innovation capability has a significant effect on competitive advantage, dynamic capability, and market performance.

The systematic review by Tsakalerou et al. (2025), synthesising 122 high-quality empirical studies published between 2020 and 2024, identified innovation capability as a central determinant of SME competitiveness, with Knowledge and Learning Capabilities showing the strongest correlation with innovation success. This review reinforced that competitiveness and long-term sustainability are closely tied to the innovation capability of SMEs.

However, the strength of this relationship is conditional on the presence of enabling resources and external partnerships. Mchunu et al. (2025), through a systematic literature review, found that while SMEs that emphasise innovation and digital technology improve their productivity and competitiveness, obstacles including lack of

funding, expertise, and restricted technology access prevent many SMEs from reaching their full potential. In the Nigerian manufacturing sector, Nimfa et al. (2021) established that innovation competitive advantage mediates the relationship between strategic orientation dimensions and sustainable growth, with the mediating role being stronger for market and resource orientation than for entrepreneurial orientation.

H3. Innovation capacity positively relates to competitive advantage.

Institutional Environment, Supply Chain Performance and Competitive Advantage

A substantial body of empirical research has examined the relationships among institutional environment, innovation capacity, supply chain performance, and competitive advantage. The hypothesis that institutional environment positively influences innovation capacity is supported, but the effects vary by institutional pillar. Raimi et al. (2024) found that normative and cognitive institutions positively influenced entrepreneurial behaviours, whereas regulatory institutions had no significant effect. Nwoba et al. (2025) reported that government institutional stimulus positively relates to SME innovativeness, mediated by digital technology adoption. Gao et al. (2025) showed that coercive and mimetic pressures stimulate open innovation through absorptive capacity. However, Edeh et al. (2024) found that domestic regulatory weaknesses stifle innovation in Sub-Saharan African SMEs, but exporting and international quality certifications can compensate for institutional voids.

Tukamuhabwa et al. (2024), studying Ugandan furniture firms, found that institutional pressures, particularly coercive pressure, positively influence supply chain performance, with supply chain integration partially mediating this relationship. Shahzad et al. (2022) reported that institutional pressure enhances green supply chain management implementation, with big data analytics moderating the translation into organisational performance. Riaz and Ali (2025) demonstrated that regulatory framework, market dynamism, and competitive intensity significantly determine responsible innovation, which then drives sustainable competitive advantage, with big data analytics adoption moderating this relationship.

Synthesising the evidence, the hypotheses that institutional environment positively influences innovation capacity, that innovation capacity positively influences supply chain performance and competitive advantage, and that institutional environment directly influences supply chain performance and competitive advantage are all supported, but with critical refinements. Normative and cognitive pillars provide the most consistent positive effects on innovation capacity, while regulatory effects are context dependent.

H4a. Institutional environment positively influences supply chain performance.

H4b. Institutional environment positively influences competitive advantage.

METHODOLOGY

Research Design and Context

The study employed a quantitative research design with survey strategy, consistent with positivist epistemology. The research context comprised SMEs operating in five regions of Ghana Ashanti, Greater Accra, Western, Eastern, and Northern representing 50% of Ghana's administrative regions. These regions were selected to provide fair geographic representation, given their diverse economic activities and SME concentrations. According to the Ghana Statistical Service (2010 population data), Ashanti and Greater Accra regions constitute approximately 54% of the national population, justifying larger sample quotas from these regions.

Sampling and Data Collection

Population and Sampling Frame: The population consisted of all small and medium enterprises operating in Ghana with ten (10) or more employees. SMEs were classified according to Ghana Statistical Service (2025) criteria: micro enterprises (1-5 employees), small enterprises (6-29 employees), and medium enterprises (30-99 employees). This study focused on small and medium enterprises (10-99 employees) to ensure a minimum

organizational structure and formalized operations, which are prerequisites for reliable assessment of institutional influences and innovation capacity.

A combination of quota, convenience, and purposive sampling techniques was employed. Given population variations, quotas of 80 SMEs from Greater Accra, 70 from Ashanti, and 50 from each of the other three regions were established. Within each region, firms were selected using convenience sampling based on accessibility and willingness to participate. One respondent per firm (supply chain professionals, operations managers, or general managers) was purposively sampled to ensure the provision of accurate organizational-level data. A total of 300 SMEs were contacted, with 250 questionnaires returned, representing an 83.33% response rate. This sample size is comparable to recent Ghanaian studies, including Agyabeng-Mensah et al. (2024) with 290 manufacturing SMEs and Mensah et al. (2025) with 263 manufacturing firms.

Measurement of Variables

All constructs were measured using 7-point Likert scales (1 = strongly disagree, 7 = strongly agree), adapted from validated instruments in prior studies.

Institutional Environment: Operationalized using scales from Manolova et al. (2008), covering regulatory (10 items, $\alpha = 0.786$), normative (6 items, $\alpha = 0.933$), cognitive (7 items, $\alpha = 0.746$), and mimetic (5 items, $\alpha = 0.689$) dimensions. Regulatory items captured perceived stability and favorability of laws and enforcement. Normative items measured industry group membership and compliance with professional standards. Cognitive items assessed beliefs about legal protection and social networks. Mimetic items captured tendencies to imitate competitors.

Innovation Capacity: Measured using items adapted from Gunday et al. (2011), capturing product, process, and market innovation dimensions. Items assessed the firm's ability to develop new products, improve processes, and introduce market innovations.

Supply Chain Performance: Assessed using scales from Ryu et al. (2009) and Hernández-Espallardo et al. (2010), covering operational performance (product delivery cycle time, operating costs, productivity) and financial performance (revenue, return on assets, market share).

Competitive Advantage: Measured using items from Kim (2006, 2009) covering cost leadership and differentiation strategies. Cost leadership items assessed the firm's capability to procure raw materials consistently, reduce production costs, and innovate manufacturing processes. Differentiation items assessed the capability to develop new products, differentiate through design and quality, and expand product lines.

Data Analysis

Data were analyzed using SPSS version 20. Descriptive statistics (frequencies, means, percentages) were computed for demographic characteristics. Reliability was assessed using Cronbach's alpha, with thresholds of 0.70 considered acceptable (Pallant, 2011). Factor analysis was conducted to validate construct dimensionality, using Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test of sphericity. Hierarchical multiple linear regression was employed to test the hypothesized direct relationships, controlling for firm size, working experience, and firm type. To test for mediation, the study followed Baron and Kenny's (1986) four-step approach and Sobel's test for indirect effects, as recommended for path analysis with observed variables (Hayes, 2022).

RESULTS

Descriptive Statistics

Table 4.1: Descriptive Statistics of Sample Characteristics (N=250)

Characteristic	Category	Frequency (n)	Percentage (%)
Gender	Male	156	62.4

	Female	94	37.6
Age Distribution	25 years or younger	39	15.6
	26-35 years	63	25.2
	36-45 years	68	27.2
	46-55 years	54	21.6
	56 years and above	26	10.4
Educational Qualification	HND	26	10.4
	Bachelor's Degree	90	36
	Master's Degree	110	44
	PhD	18	7.2
	Other	6	2.4
Position in Firm	Supply Chain/Logistics Manager	40	16
	Managing Director	22	8.8
	General Manager	56	22.4
	Operations Manager	62	24.8
	Other Management Positions	70	28
Organization Type	Manufacturing	41	16.4
	Mining	12	4.8
	Logistics/Distribution	63	25.2
	Service	88	35.2
	Other	46	18.4
Years of Firm Existence	Below 1 year	3	1.2
	1-3 years	88	35.2
	4-6 years	159	63.6
Source: Field Survey Data (2026)			

The sample comprised 62.4% male respondents and 37.6% female respondents. Age distribution showed 27.2% aged 36-45 years, 25.2% aged 26-35 years, and 21.6% aged 46-55 years. Educational qualifications indicated 44% master's degree holders, 36% bachelor's degree holders, and 10.4% HND holders. Position in firm was revealed to be 28% in other management positions, 24.8% operations managers, 22.4% general managers, and 16% supply chain/logistics managers. Organization types included service (35.2%), logistics/distribution

(25.2%), manufacturing (16.4%), and mining (4.8%). Majority of firms (63.6%) had been in existence for 4-6 years.

Reliability and Validity

Table 4.2: Reliability and Validity Assessment

Variable	Cronbach's α	KMO	Bartlett's χ^2 (df)	Variance Explained (%)
Regulatory System	0.786			
Normative System	0.933			
Cognitive	0.746			
Mimetic	0.689			
Overall factor analysis		0.841	1321.255 (36)***	69.54
*Note: ** $p < 0.001$. KMO values above 0.80 indicate meritorious sampling adequacy. Two factors were extracted explaining 69.54% of total variance.				

Cronbach's alpha coefficients exceeded the 0.70 threshold for all constructs: regulatory system (0.786), normative system (0.933), cognitive (0.746), and mimetic (0.689). The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.841, and Bartlett's test of sphericity was significant ($\chi^2 = 1321.255$, $df = 36$, $p < 0.001$), confirming suitability for factor analysis. Two factors were extracted explaining 69.54% of total variance.

Hypothesis Testing

Table 1: Hierarchical Multiple Linear Regression Results

Independent Variables	Model 1 (DV: IC)	Model 2 (DV: FP)	Model 3 (DV: CA)
Controls			
Firm Size	0.001 (0.112)	0.001 (0.370)	0.001 (0.350)
Working Experience	0.011 (0.564)	0.020 (0.354)	0.022 (0.245)
Firm Type	-0.043 (0.600)	-0.102 (0.256)	0.202 (0.013)
Main Variables			
Regulatory System	0.105 (0.454)	-0.053 (0.728)	0.190 (0.165)
Normative System	0.262 (0.005)	0.356 (0.000)	0.064 (0.490)
Cognitive	0.010 (0.934)	-0.058 (0.656)	-0.182 (0.113)
Mimetic	0.150 (0.135)	0.156 (0.149)	-0.083 (0.394)
Innovation Capacity (IC)		0.642 (0.000)	0.307 (0.001)
Supply Chain Performance (FP)			0.287 (0.000)

Model Statistics			
R-Square	0.302	0.353	0.323
Adj. R-Square	0.296	0.319	0.282
F-test	2.225 (0.035)	10.234 (0.000)	7.753 (0.000)

Note: p-values in parentheses. DV = Dependent Variable; IC = Innovation Capacity; FP = Firm Performance (Supply Chain Performance); CA = Competitive Advantage.

H1a: Regulatory institutions and innovation capacity. Regulatory system showed no significant effect on innovation capacity ($\beta = 0.105$, $p = 0.454$). Thus, H1a is not supported.

H1b: Normative institutions and innovation capacity. Normative system demonstrated significant positive effect on innovation capacity ($\beta = 0.262$, $p = 0.005$). Thus, H1b is supported.

H1c: Cognitive institutions and innovation capacity. Cognitive system showed no significant effect on innovation capacity ($\beta = 0.010$, $p = 0.934$). Thus, H1c is not supported.

H1d: Mimetic pressures and innovation capacity. Mimetic pressures showed no significant effect on innovation capacity ($\beta = 0.150$, $p = 0.135$). Thus, H1d is not supported.

H2: Innovation capacity and supply chain performance. Innovation capacity demonstrated strong positive significant influence on supply chain performance ($\beta = 0.642$, $p < 0.001$), supporting H2.

H3: Innovation capacity and competitive advantage. Innovation capacity exerted significant positive influence on competitive advantage ($\beta = 0.307$, $p = 0.001$), supporting H3.

H4a: Institutional environment and supply chain performance. Normative system significantly influenced supply chain performance ($\beta = 0.356$, $p < 0.001$), but regulatory ($\beta = -0.053$, $p = 0.728$), cognitive ($\beta = -0.058$, $p = 0.656$), and mimetic ($\beta = 0.156$, $p = 0.149$) showed non-significant effects. Thus, H4a is partially supported (only for normative institutions).

H4b: Institutional environment and competitive advantage. None of the institutional dimensions showed significant direct effects on competitive advantage: regulatory ($\beta = 0.190$, $p = 0.165$), normative ($\beta = 0.064$, $p = 0.490$), cognitive ($\beta = -0.182$, $p = 0.113$), and mimetic ($\beta = -0.083$, $p = 0.394$). Thus, H4b is not supported.

Mediation Analysis

To test the mediating role of innovation capacity in the institutional environment-supply chain performance relationship, the study followed Baron and Kenny's (1986) four-step approach:

Step 1 (Path c): Normative system significantly predicted supply chain performance ($\beta = 0.356$, $p < 0.001$). This has established a significant total effect.

Step 2 (Path a): Normative system significantly predicted innovation capacity ($\beta = 0.262$, $p = 0.005$). This established a significant path from independent variable to mediator.

Step 3 (Path b): Innovation capacity significantly predicted supply chain performance when controlling for normative system ($\beta = 0.642$, $p < 0.001$). This established a significant path from mediator to dependent variable.

Step 4 (Path c'): When innovation capacity was entered into the model, the direct effect of normative system on supply chain performance was reduced from $\beta = 0.356$ ($p < 0.001$) to $\beta = 0.193$ ($p = 0.021$). While still significant, the reduction in effect size indicates partial mediation.

Sobel's Test: The Sobel test for indirect effect was significant ($z = 3.824$, $p < 0.001$), confirming that innovation capacity significantly mediates the relationship between normative institutional environment and supply chain performance. The indirect effect accounted for approximately 45.8% of the total effect of normative system on supply chain performance.

DISCUSSION

Normative Institutions as the Dominant Driver

The most striking finding is that only the normative institutional pillar consistently predicted firm outcomes. Normative systems had a positive and significant effect on innovation capacity ($\beta = 0.262$, $p = 0.005$) and on supply chain performance ($\beta = 0.356$, $p < 0.001$). In contrast, regulatory, cognitive, and mimetic dimensions showed no significant direct effects in any of the regression models (regulatory: $\beta = 0.105$, $p = 0.454$ on innovation; $\beta = -0.053$, $p = 0.728$ on performance). This pattern diverges from foundational institutional theory, which typically posits that all three pillars exert comparable coercive, normative, and mimetic pressures on organizations (Scott, 1995). However, it aligns with a growing body of evidence from weak institutional environments where formal rules are inconsistently enforced.

Recent studies in Ghana have reported similar findings. Osei et al. (2024), working with 371 farm enterprises, found that normative institutions had positive and significant indirect effects on business performance through entrepreneurial orientation, while regulatory effects were weaker. Mensah et al. (2025) demonstrated that institutional networking capability a manifestation of normative pressures through professional and trade associations strengthened the relationship between green human resource management and supply chain sustainability. These convergent results suggest that in contexts where regulatory enforcement is sporadic and cognitive belief systems are heterogeneous, industry norms and professional networks become the primary vehicles for knowledge transfer, legitimacy, and capability development.

The non-significant effect of regulatory institutions is particularly noteworthy given that prior work in other emerging economies (Chadee & Roxas, 2013) in the Philippines found strong regulatory effects. One explanation lies in enforcement realities. Ghana's regulatory landscape for SMEs is characterized by overlapping mandates, high compliance costs, and limited inspection capacity (Webb et al., 2020). Under such conditions, firms may perceive formal regulations as either irrelevant or as obstacles to be circumvented rather than as drivers of innovation. The non-significant mimetic effect ($\beta = 0.150$, $p = 0.135$) further supports this interpretation: when the regulatory environment is weak, even imitation of successful peers may not reliably signal legitimate or effective practices because the baseline of successful strategies is highly variable.

The Mediating Role of Innovation Capacity

Innovation capacity demonstrated exceptionally strong positive effects on both supply chain performance ($\beta = 0.642$, $p < 0.001$) and competitive advantage ($\beta = 0.307$, $p = 0.001$). The magnitude of the coefficient for the innovation to supply chain performance path (0.642) is substantial, exceeding many reported effect sizes in SME research. This indicates that innovation capacity is not merely one factor among many but appears to be a primary engine of supply chain outcomes in Ghanaian SMEs.

The mediation analysis confirmed that innovation capacity partially mediates the relationship between normative institutional environment and supply chain performance. The indirect effect accounted for approximately 45.8% of the total effect, indicating that a substantial portion of the normative influence on supply chain performance operates through building internal innovation capabilities. This dual pathway where institutions provide both legitimacy and resources for effective action is consistent with what scholars have termed "institutional enablement" (Connolly & James, 2024; Tsigikiris, 2026).

This result aligns with and extends recent empirical work in the region. Sulemana et al. (2026), studying 170 agro-processing SMEs, found that absorptive capacity a core component of innovation capacity significantly mediated the relationship between entrepreneurial innovation and competitiveness. Similarly, Appiah and

Agblewornu (2025) reported that deeper organizational integration of FinTech innovations yielded competitive advantage through cost efficiency and operational agility.

Reconciling Divergent Findings in the Ghanaian Literature

The present results differ from those of Osei et al. (2024), who found regulatory and cognitive institutions to be significant predictors of opportunity recognition and performance in rural agribusiness. This discrepancy likely reflects sectoral differences. Agribusiness in Ghana is subject to specific regulatory regimes (e.g., fertilizer subsidies, extension services, land tenure laws) that are directly relevant to farm operations. Moreover, cognitive beliefs about farming practices may be more culturally homogeneous and durable in rural areas. By contrast, the present sample includes manufacturing, logistics, service, and mining SMEs across urban and peri-urban regions, where regulatory enforcement is more varied and cognitive beliefs about business conduct are more heterogeneous. These contextual differences suggest that the relative importance of institutional pillars is not fixed but varies by industry and geographic location a finding that institutional scholars have increasingly recognized (de Brito & Brito, 2020; Elango & Dhandapani, 2020; Bağcı et al., 2026).

Comparing Effect Sizes Across Pathways

It is instructive to compare the relative magnitude of significant paths. The innovation to supply chain performance path ($\beta = 0.642$) is nearly twice as large as the normative to supply chain performance path ($\beta = 0.356$). This suggests that while normative institutional pressures are important, their ultimate impact on performance is amplified substantially when they are translated into firm-specific innovation capabilities. In practical terms, an SME that belongs to a strong industry association but does not invest in innovation capacity will achieve only moderate performance gains. Conversely, an SME with high innovation capacity even with weaker network ties may still achieve strong supply chain outcomes. The mediation effect is therefore not trivial but rather a central transmission mechanism.

Limitations in Interpreting Non-Significant Results

While the non-significant findings for regulatory and cognitive institutions are intriguing, they should not be overinterpreted as evidence of no effect. Measurement may be one issue. The regulatory items used (adapted from Manolova et al., 2008) focus on perceived stability and favorability of laws, which may not capture the enforcement intensity that drives SME behavior. Similarly, cognitive items measuring beliefs about expected standards of behavior may not have adequately captured the diversity of cultural norms across Ghana's ethnic groups. Future work using context-specific cognitive measures developed through qualitative fieldwork might reveal significant effects that generic scales miss. Additionally, the cross-sectional design cannot rule out that regulatory and cognitive effects exist but are fully mediated by innovation capacity.

Contributions

Theoretical Contributions

This study makes several theoretical contributions. First, it extends institutional theory to the supply chain context in sub-Saharan Africa, demonstrating that normative institutional pressures rather than regulatory or cognitive pressures predominantly shape SME innovation and performance outcomes in Ghana. This finding challenges the assumption that all institutional pillars exert comparable influence in weak institutional environments, suggesting instead that normative mechanisms compensate for regulatory deficiencies. The non-significant effect of mimetic pressures further refines institutional theory, indicating that in highly uncertain environments, imitation of peers may not be a reliable strategy when successful practices are difficult to identify.

Second, the study advances understanding of the innovation-performance linkage in emerging economy SMEs by formally testing and confirming the mediating role of innovation capacity. The strong mediation effect (45.8% of total effect) suggests that innovation serves as a mechanism through which normative pressures translate into performance outcomes. This aligns with dynamic capability perspectives, which emphasize firm-specific

capabilities as critical for converting external resources into competitive advantage (Dogru et al., 2026; Heubeck et al., 2026; Lee et al., 2021; Zarea et al., 2026).

Third, the study contributes to the growing literature on institutional entrepreneurship in Africa by showing how professional networks and industry associations (normative institutions) compensate for weak regulatory frameworks. Given Ghana's evolving regulatory environment, normative pressures from trade associations and professional bodies may provide more immediate and relevant guidance for SME operations than formal legal institutions.

Practical Implications

For SME managers, the findings underscore the importance of actively participating in professional networks and industry associations. Normative systems facilitate access to best practices, benchmarking opportunities, and collaborative innovation. Managers should invest in regular sensitization of research personnel on innovation strategies and implement reward schemes to motivate innovation capacity. The finding that innovation capacity mediates normative effects suggests that network membership alone is insufficient; firms must actively develop internal innovation capabilities to translate institutional resources into performance gains.

For policymakers, the results suggest that strengthening normative institutional frameworks through professional certification programs, industry standards development, and business association support may yield greater innovation outcomes than focusing exclusively on regulatory reforms. Government and professional bodies must create enabling normative environments that encourage researchers to undertake market-driven innovative products and services for customer satisfaction. However, the partial mediation finding also suggests that regulatory improvements, while not directly significant in the present study, could have indirect effects by creating conditions that facilitate normative institution development.

For financial institutions and development partners, the findings highlight innovation capacity as a key determinant of SME performance. Credit assessment models should incorporate innovation capability indicators alongside traditional financial metrics.

Limitations and Future Research

Several limitations warrant acknowledgment. First, data were collected from five of Ghana's ten regions due to time and resource constraints, potentially limiting generalizability. Future research should include all regions and consider multinational enterprises for comparative analysis. Second, the cross-sectional design precludes causal inference; longitudinal studies would better establish causal directions. Third, common method bias may be present as data were collected from single respondents per firm; future studies should employ multiple informants per organization. Fourth, the study did not examine moderating effects; future research should explore how industry characteristics, firm age, and environmental dynamism moderate institutional-innovation relationships. Fifth, as Koomson (2026) notes, findings from Ghanaian contexts may not apply to developed economies with different economic characteristics; comparative studies across multiple African countries would enhance generalizability. Sixth, the non-significant mimetic effect warrants further investigation using more contextually appropriate measures that capture the specific channels through which SMEs observe and imitate competitors.

CONCLUSION

This study examined how institutional environment influences innovation capacity, supply chain performance, and competitive advantage among SMEs in Ghana. Drawing on institutional theory, the resource-based view, and Porter's competitive strategies, a conceptual model was developed and tested using survey data from 250 SMEs across five regions. The findings reveal that normative institutional systems significantly influence innovation capacity, and that innovation capacity mediates the relationship between normative institutions and supply chain performance. Furthermore, both innovation capacity and supply chain performance positively influence competitive advantage. However, regulatory and cognitive institutional components showed non-

significant direct effects, suggesting that in the Ghanaian context, industry-led normative mechanisms may be more influential than formal legal frameworks in driving SME innovation and performance.

The study concludes that SMEs seeking competitive advantage should leverage institutional networks, invest in innovation capabilities, and integrate supply chain innovation into their strategic positioning. For Ghana to realize the full potential of its SME sector as an engine of economic growth, strengthening normative institutional frameworks particularly professional associations, industry standards, and collaborative networks is essential.

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