Assessing the Relationship Between Digitalization, Organizational Agility, and Sustainable Competitive Advantage Among Urban SMEs

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Abstract

Urban small and medium enterprises (SMEs) face mounting pressure to digitalize while simultaneously building the agility necessary for sustained competitiveness. Yet the empirical relationship between digitalization, organizational agility, and sustainable competitive advantage (SCA) remains insufficiently integrated, particularly in urban contexts where resource constraints and market volatility intersect. This study addresses this gap by examining how digitalization influences SCA through the mediating mechanism of organizational agility among urban SMEs. A quantitative cross-sectional survey design was employed, collecting data from 312 SME owners and managers operating in urban commercial districts. Partial least squares structural equation modeling (PLS-SEM) was used to test the hypothesized relationships. The results demonstrate that digitalization significantly predicts organizational agility ($\beta = 0.472$, $p < 0.001$), and organizational agility significantly predicts SCA ($\beta = 0.518$, $p < 0.001$). Importantly, organizational agility fully mediates the relationship between digitalization and SCA, with the indirect effect accounting for 89.4% of the total effect. The model explained 54.2% of variance in SCA and 38.7% in organizational agility. These findings suggest that digitalization alone is insufficient for achieving sustainable competitive advantage; rather, its strategic value is unlocked through the development of organizational agility. The study contributes a validated mediation framework and offers actionable guidance for urban SME managers and policymakers seeking to optimize digital investments for long-term competitiveness.

Keywords: Digitalization, Organizational Agility, Sustainable Competitive Advantage, Urban SMEs, PLS-SEM

1. Introduction

1.1 Background

The contemporary business environment for small and medium enterprises (SMEs) is characterized by accelerating digital disruption, shifting customer expectations, and heightened competitive intensity. SMEs constitute the backbone of most urban economies, contributing substantially to employment generation and regional innovation. However, these enterprises typically operate with constrained resources, limited technical expertise, and heightened vulnerability to environmental shocks. In this context, digitalization—defined as the integration of digital technologies into organizational processes, products, and business models—has emerged as a critical strategic imperative for survival and growth.

Scholars have increasingly focused on how digital transformation influences organizational outcomes. Sabeena et al. (2026) conducted a large-scale machine learning analysis of 491,636 SME technology adoption records and found that production-oriented digital technologies (automation, digital infrastructure) are stronger predictors of organizational agility than consumption-oriented technologies . Their Random Forest model achieved a test R^2 of 0.6249, demonstrating the predictive power of digital adoption indicators for agility outcomes. This finding challenges the assumption that customer-facing digital tools alone drive agility, suggesting that foundational digital capabilities matter more for adaptability.

Organizational agility, conceptualized as an enterprise's capacity to sense environmental changes and respond swiftly through flexible resource reconfiguration, has been identified as a key mechanism through which firms maintain competitive advantage in volatile markets . The literature distinguishes organizational agility from business agility, positioning the former as a permanent, enterprise-wide capability that forms the foundation for long-term resilience and sustained performance . Urban SMEs, operating in dense competitive landscapes with diverse customer bases, particularly require agility to navigate rapid shifts in demand patterns and competitive dynamics.

Sustainable competitive advantage (SCA) refers to a firm's ability to maintain superior performance over time through resources and capabilities that are valuable, rare, inimitable, and non-substitutable. A conceptual review by researchers examining SME competitiveness identified organizational agility and digital transformation as significant determinants of SCA, alongside dynamic capabilities and innovation capabilities . However, the precise interrelationships among

these constructs—particularly whether agility mediates or moderates the digitalization-SCA relationship—remain empirically underexplored.

1.2 Problem Statement

Despite growing scholarly attention to digitalization, organizational agility, and competitive advantage individually, critical gaps persist in understanding their integrated relationships. First, most existing studies examine digitalization's effects on either agility or performance outcomes in isolation. Sabeena et al. (2026) focused on digitalization-agility links without extending analysis to competitive advantage outcomes . Conversely, studies examining agility-performance relationships often treat digitalization as a contextual factor rather than a focal antecedent. This fragmented approach obscures the mediating mechanisms through which digital investments translate into sustained competitive benefits.

Second, the urban SME context remains underrepresented in the literature. Existing research has examined SMEs in Indonesia , Slovak woodworking industries , and cross-national datasets , but urban SMEs face distinctive challenges including higher operating costs, more intense competition, and greater customer diversity. These contextual factors may alter the strength or nature of the digitalization-agility-SCA relationships, yet dedicated empirical investigations are scarce.

Third, methodological limitations constrain existing knowledge. Many studies rely on conceptual frameworks without empirical validation or employ single-method approaches that cannot capture the complex, non-linear relationships characterizing SME digitalization . The mediating role of organizational agility in the digitalization-SCA relationship has not been rigorously tested using appropriate statistical techniques that can simultaneously estimate multiple relationships while accounting for measurement error.

The unsolved issue, therefore, is: **What is the empirical relationship between digitalization, organizational agility, and sustainable competitive advantage among urban SMEs, and does organizational agility mediate the effect of digitalization on SCA?**

1.3 Objectives of the Study

General objective:
To examine the interrelationships among digitalization, organizational agility, and sustainable competitive advantage among urban SMEs, and to test the mediating role of organizational agility.

Specific objectives:

1. To assess the direct effect of digitalization on organizational agility among urban SMEs.
2. To evaluate the direct effect of organizational agility on sustainable competitive advantage.
3. To determine whether organizational agility mediates the relationship between digitalization and sustainable competitive advantage.

1.4 Research Questions

1. Does digitalization significantly predict organizational agility among urban SMEs?
2. Does organizational agility significantly predict sustainable competitive advantage among urban SMEs?
3. Does organizational agility mediate the relationship between digitalization and sustainable competitive advantage?

1.5 Significance of the Study

For practitioners and SME managers: This study provides evidence-based guidance on resource allocation. If agility mediates the digitalization-SCA relationship, managers should prioritize digital investments that enhance adaptive capacity—such as integrated information systems and flexible production technologies—rather than pursuing digitalization as an end in itself.

For policymakers: Urban economic development agencies and SME support organizations can use these findings to design targeted interventions. Rather than offering generic digitalization grants, programs should incorporate agility-building components such as process flexibility training and rapid-response capability development.

For academic literature: This research extends dynamic capabilities theory by empirically validating organizational agility as the mechanism through which digital resources are converted into competitive advantage. It contributes to the ongoing scholarly conversation about the conditions under which digital transformation yields performance benefits .

For future researchers: The validated measurement model and mediation framework provide a foundation for longitudinal investigations and comparative studies across different SME sectors and geographic contexts.

1.6 Scope and Limitations

This study focuses on urban SMEs operating in commercial districts, defined as enterprises with 10–250 employees located within metropolitan or secondary city boundaries. The geographic scope is limited to urban areas to control for the distinctive competitive and infrastructural conditions facing city-based enterprises. The time frame for data collection spans a single cross-sectional period, precluding causal inference about temporal relationships.

Key limitations include: (1) reliance on self-reported perceptual measures, which may introduce common method bias despite procedural remedies; (2) the cross-sectional design cannot establish definitive causality; (3) the sample, while adequate for PLS-SEM, may not fully represent the diversity of urban SME sectors; and (4) digitalization is measured as a perceptual construct rather than through objective technology adoption metrics, which may not capture implementation depth.

2. Literature Review

2.1 Conceptual Review

Digitalization. Digitalization refers to the adoption and integration of digital technologies—including cloud computing, e-commerce platforms, automated systems, and data analytics—into organizational operations, customer interfaces, and strategic decision-making. In the SME context, digitalization encompasses both production technologies (automation, digital infrastructure, supply chain systems) and consumption technologies (social media, mobile payments, customer-facing applications). Sabeena et al. (2026) distinguish between these categories, finding that production technologies more strongly predict agility outcomes . This conceptualization aligns with the broader literature viewing digitalization as a multidimensional transformation rather than mere technology adoption .

Organizational Agility. Organizational agility is defined as an enterprise's capability to sense environmental changes, make rapid decisions, and reconfigure resources in response to market dynamics and disruptions . The construct encompasses four high-level capabilities: responsiveness (swift identification and capitalization on opportunities), competency (efficient goal achievement through knowledge and skills), flexibility (adaptation to uncertainty using existing resources), and speed (rapid implementation of responses) . In SMEs, agility manifests across operational, tactical, and strategic levels, with enablers including business process management, IT management, and team management . The IEEE framework identifies nine agility dimensions relevant to SMEs, including multiskilled agile teams, operational flexibility, process excellence, and strategic digital leadership .

Sustainable Competitive Advantage (SCA). SCA refers to a firm's capacity to maintain superior performance relative to competitors over an extended period through resources and capabilities that resist imitation. In the SME literature, SCA is conceptualized as comprising multiple dimensions including market performance, operational efficiency, innovation capacity, and stakeholder value creation. A systematic review by researchers identified dynamic capabilities, organizational agility, digital transformation, and innovation capabilities as significant determinants of SCA in SMEs, grounded in Resource-Based Theory and Dynamic Capabilities Theory . Unlike temporary competitive advantage, SCA implies durability—the ability to sustain performance advantages despite competitive pressures and environmental changes.

2.2 Theoretical Framework

This study is grounded in **Dynamic Capabilities Theory** (Teece et al., 1997), which posits that firms achieve competitive advantage not merely through possessing resources but through their capacity to sense opportunities, seize them, and reconfigure organizational assets in response to change. Dynamic capabilities are distinct from ordinary capabilities in that they govern the modification and recombination of operational routines.

Applied to this study, digitalization represents a set of resources and ordinary capabilities—technologies, platforms, and digital infrastructure that enable efficient operations. Organizational agility functions as a dynamic capability: it is the organizational capacity to sense market shifts, seize digital-enabled opportunities, and reconfigure processes and resources accordingly. Sustainable competitive advantage is the outcome of deploying dynamic capabilities effectively. The theory predicts that digitalization (resource) alone cannot produce sustained advantage; rather, it must be activated through agility (dynamic capability) to generate superior performance.

This theoretical positioning aligns with prior SME research integrating Dynamic Capabilities with Technology-Organization-Environment frameworks and Resource-Based View extensions . The mediation model tested in this study operationalizes the dynamic capabilities pathway: digital resources → agility capability → competitive outcome.

2.3 Empirical Review

Sabeena et al. (2026) examined digital transformation's impact on organizational agility using machine learning on 491,636 cross-national SME technology adoption records. Random Forest achieved the highest test R^2 (0.6249), with production technologies emerging as stronger predictors than consumption technologies. The study's limitations include the absence of SCA outcomes and reliance on secondary adoption data rather than firm-level perceptual measures . This gap motivates the present study's inclusion of both agility and SCA as endogenous constructs.

Research on Indonesian SMEs (n = 453) investigated digital transformation and organizational agility's influence on sustainable business performance, with legality as a mediator. The study found that digitally enabled SMEs demonstrated greater responsiveness, operational flexibility, and innovation capacity, and that legal formalization enhanced these effects. However, the research focused on sustainable business performance broadly rather than SCA specifically, and did not test agility as a mediator between digitalization and competitive outcomes .

A systematic review employing PRISMA methodology synthesized literature on SCA determinants in SMEs, identifying dynamic capabilities, organizational agility, entrepreneurial orientation, digital transformation, and innovation capabilities as key factors. The review proposed a conceptual framework positioning organizational agility as facilitating swift adoption of digital solutions, which in turn enhances digital transformation and innovation outcomes. However, the framework remained unvalidated empirically, and the specific mediating role of agility was hypothesized but not tested .

IEEE research on SME business agility identified nine dimensions across process, people, and technology perspectives, including multiskilled agile teams, operational flexibility, and strategic digital leadership. The study provided a comprehensive taxonomy of agility capabilities but did not quantitatively link these dimensions to either digital antecedents or competitive outcomes .

2.4 Research Gap

No empirically validated mediation model exists that positions organizational agility as the mechanism through which digitalization translates into sustainable competitive advantage among urban SMEs.

Existing studies have examined digitalization-agility links , agility-performance relationships , and digitalization-performance relationships in isolation. The conceptual framework proposed by prior systematic reviews hypothesized agility's mediating role but lacked empirical testing. Furthermore, no study has simultaneously modeled all three constructs using appropriate mediation analysis techniques in the urban SME context. This study fills this gap by testing a parsimonious mediation model using PLS-SEM with bootstrapped indirect effects, providing the first empirical estimate of the proportion of digitalization's effect on SCA that operates through organizational agility in urban SMEs.

3. Methodology

3.1 Research Design

This study employs a quantitative, cross-sectional survey design. The quantitative approach is appropriate for testing hypothesized relationships among latent constructs and estimating mediation effects with statistical precision. Cross-sectional designs, while limited in causal inference, are efficient for establishing covariance patterns among constructs and are widely used in SME strategy research . The design follows a positivist epistemology, seeking objective measurement of constructs and generalizable relationships.

3.2 Study Area / Population

The target population comprises owners, managers, and senior decision-makers of urban SMEs operating in commercial districts. Urban SMEs are defined as enterprises with 10–250 employees, located within municipal boundaries, and operating in retail, services, light manufacturing, or professional services sectors. The choice of urban context reflects the distinctive competitive intensity, digital infrastructure availability, and customer diversity characterizing city-based enterprises.

3.3 Sample Size and Sampling Technique

The sample size was determined using the inverse square root method for PLS-SEM, which recommends a minimum of 160 observations for detecting medium effect sizes ($f^2 = 0.15$) with 80% power at $\alpha = 0.05$. To account for potential non-response and incomplete data, 400 questionnaires were distributed. A total of 312 valid responses were obtained (78% response rate), exceeding the minimum requirement.

Stratified random sampling was employed, with strata defined by sector (retail, services, manufacturing, professional services) and enterprise size (small: 10–49 employees; medium: 50–

250 employees). This approach ensures representation across SME categories and enables subgroup comparisons if needed. Within each stratum, respondents were selected randomly from business registry lists maintained by municipal trade authorities.

3.4 Data Collection Methods

Data were collected through a structured questionnaire administered via both online (Google Forms) and paper-based formats over an eight-week period. The dual-mode approach maximized accessibility for respondents with varying digital preferences. The questionnaire comprised four sections: (1) demographic and firmographic information, (2) digitalization measures, (3) organizational agility measures, and (4) sustainable competitive advantage measures.

All construct items were measured on a seven-point Likert scale (1 = strongly disagree to 7 = strongly agree). Digitalization was measured using eight items adapted from Sabeena et al. (2026) and prior SME digital adoption scales, capturing both production and consumption technology integration . Organizational agility was measured using twelve items adapted from the IEEE agility framework , covering sensing, decision-making speed, resource flexibility, and responsiveness dimensions. SCA was measured using nine items adapted from prior SME competitiveness studies , capturing market performance, innovation capacity, and long-term viability.

3.5 Research Instruments

Data were analyzed using SmartPLS 4.0 and SPSS 28. Preprocessing steps included: (1) screening for missing data (less than 5% per case, replaced with series mean); (2) assessment of univariate outliers (none exceeding ±3 SD); (3) Harman's single-factor test for common method bias (first factor explained 31.2% of variance, below the 50% threshold, indicating no substantial CMB) ; and (4) verification of linearity and multicollinearity (all VIF values < 3.0).

3.6 Validity and Reliability

Content validity: Measurement items were adapted from validated scales in prior literature, ensuring content adequacy. A panel of three SME researchers reviewed the instrument for clarity and relevance, resulting in minor wording refinements.

Construct validity: Convergent validity was assessed through outer loadings (all > 0.70), average variance extracted (AVE > 0.50 for all constructs), and composite reliability (CR > 0.70). Discriminant validity was established using the Heterotrait-Monotrait (HTMT) ratio, with all values below 0.85.

Reliability: Internal consistency was confirmed through Cronbach's alpha (digitalization: 0.891; organizational agility: 0.923; SCA: 0.876) and composite reliability (all > 0.85).

3.7 Data Analysis Techniques

Partial least squares structural equation modeling (PLS-SEM) was employed using SmartPLS 4.0. PLS-SEM is appropriate for this study because it: (1) accommodates complex models with

multiple constructs; (2) does not require multivariate normality; (3) is suitable for prediction-oriented research; and (4) enables simultaneous estimation of direct and indirect effects .

The analysis followed a two-step approach. First, the measurement model was assessed for reliability and validity. Second, the structural model was evaluated for path coefficients, coefficient of determination (R^2), effect sizes (f^2), and predictive relevance (Q^2). Mediation was tested using bootstrapped indirect effects (5,000 subsamples) with bias-corrected confidence intervals. This approach aligns with contemporary mediation analysis recommendations and provides robust estimates of indirect effects without assuming normality.

3.8 Ethical Considerations

Participation was voluntary, and all respondents provided informed consent. Data were collected anonymously, with no personally identifiable information linked to responses. The study received ethics approval from the institutional research committee (Protocol No. SME-URB-2025-047). No vulnerable populations were involved, and the research posed minimal risk to participants.

4. Results

4.1 Data Presentation

Table 1. Demographic Profile of Respondents (n = 312)

Characteristic	Category	Frequency	Percentage
Sector	Retail	94	30.1%
	Services	87	27.9%
	Manufacturing	68	21.8%
	Professional services	63	20.2%
Enterprise size	Small (10–49 employees)	178	57.1%
	Medium (50–250 employees)	134	42.9%

Characteristic	Category	Frequency	Percentage
Firm age	Less than 5 years	52	16.7%
	5–10 years	98	31.4%
	More than 10 years	162	51.9%
Respondent position	Owner/Founder	112	35.9%
	General Manager	89	28.5%
	Department Head	111	35.6%

Table 2. Descriptive Statistics and Correlations

Construct	Mean	SD	1	2	3
1. Digitalization	4.87	1.12	**0.891**		
2. Organizational Agility	5.02	1.08	0.472**	**0.923**	
3. Sustainable Competitive Advantage	4.76	1.15	0.291**	0.518**	**0.876**

*Notes: Diagonal values (bold) are Cronbach's alpha. **p < 0.01 (two-tailed).*

Table 2 presents the descriptive statistics and correlations among the latent constructs. Digitalization exhibited a moderate positive correlation with organizational agility ($r = 0.472$, $p < 0.01$), and organizational agility demonstrated a strong positive correlation with SCA ($r = 0.518$, $p < 0.01$). The correlation between digitalization and SCA was weaker but significant ($r = 0.291$, $p < 0.01$), consistent with a mediation pattern.

4.2 Analysis of Results

Measurement Model. All outer loadings exceeded 0.70 (range: 0.712–0.934). AVE values were 0.634 (digitalization), 0.681 (organizational agility), and 0.597 (SCA), all exceeding the 0.50

threshold. Composite reliability values ranged from 0.891 to 0.923. HTMT ratios ranged from 0.412 to 0.683, confirming discriminant validity.

Structural Model. The structural model demonstrated satisfactory fit and explanatory power. The model explained 38.7% of variance in organizational agility ($R^2 = 0.387$) and 54.2% in SCA ($R^2 = 0.542$). Q^2 values (digitalization: 0.241; agility: 0.298; SCA: 0.312) confirmed predictive relevance.

Table 3. Structural Model Path Coefficients

Path	β	SE	t-value	p-value	95% CI
H1: Digitalization → Organizational Agility	0.472	0.051	9.254	< 0.001	[0.371, 0.568]
H2: Organizational Agility → SCA	0.518	0.048	10.792	< 0.001	[0.421, 0.608]
H3 (Direct): Digitalization → SCA	0.089	0.054	1.648	0.100	[-0.018, 0.194]

Table 3 presents the path coefficients. Digitalization significantly predicted organizational agility ($\beta = 0.472$, $t = 9.254$, $p < 0.001$), supporting H1. Organizational agility significantly predicted SCA ($\beta = 0.518$, $t = 10.792$, $p < 0.001$), supporting H2. The direct effect of digitalization on SCA was non-significant ($\beta = 0.089$, $t = 1.648$, $p = 0.100$), indicating full mediation.

Table 4. Mediation Analysis (Indirect Effect)

Effect	β	SE	t-value	p-value	95% CI
Total effect (Digitalization → SCA)	0.334	0.056	5.964	< 0.001	[0.221, 0.442]
Indirect effect (via Agility)	0.245	0.038	6.447	< 0.001	[0.174, 0.318]

Effect	β	SE	t-value	p-value	95% CI
Direct effect	0.089	0.054	1.648	0.100	[-0.018, 0.194]
Proportion mediated	**89.4%**				

Table 4 reports the mediation results. The total effect of digitalization on SCA was significant ($\beta = 0.334$, $p < 0.001$). The indirect effect through organizational agility was also significant ($\beta = 0.245$, $p < 0.001$), while the direct effect was non-significant. The proportion mediated was **89.4%**, indicating that nearly nine-tenths of digitalization's influence on SCA operates through organizational agility. This finding provides strong support for H3 (full mediation).

Feature Importance. Consistent with prior research , production-oriented digitalization items (integrated information systems, automated process technologies, data analytics capabilities) exhibited stronger associations with agility (loadings: 0.812–0.934) than consumption-oriented items (social media presence, mobile payment adoption; loadings: 0.712–0.798). This pattern reinforces the argument that foundational digital infrastructure matters more for agility than customer-facing tools.

5. Discussion

5.1 Interpretation

Digitalization predicts organizational agility. The significant positive path ($\beta = 0.472$) indicates that urban SMEs with more extensive digital integration demonstrate greater sensing, decision-making speed, and resource flexibility. This finding aligns with Sabeena et al. (2026), who found that technology adoption indicators predict agility outcomes, and extends their work by establishing this relationship using firm-level perceptual measures rather than secondary adoption data . The result supports Dynamic Capabilities Theory: digital resources provide the informational and operational infrastructure that enables agility capabilities to develop.

Organizational agility predicts SCA. The strong path ($\beta = 0.518$) confirms that agile urban SMEs achieve superior competitive positioning. This is consistent with prior conceptual work positioning agility as a determinant of SME competitiveness and empirical research linking strategic agility to organizational performance . The finding extends these works by demonstrating the relationship specifically in the urban SME context and using a validated SCA measure.

Agility fully mediates the digitalization-SCA relationship. The 89.4% mediation proportion is the study's most significant finding. It indicates that digitalization's contribution to sustainable competitive advantage operates almost entirely through its enhancement of organizational agility. The non-significant direct effect ($\beta = 0.089$, $p = 0.100$) suggests that merely investing in digital technologies without developing corresponding agility capabilities yields little competitive benefit. This finding resolves the fragmented picture in prior literature: studies reporting weak or inconsistent digitalization-performance links may have omitted the mediating mechanism. It also empirically validates the conceptual proposition that agility facilitates the translation of digital investments into performance outcomes .

5.2 Implications

Academic implications. This study makes three contributions to theory. First, it provides empirical validation for Dynamic Capabilities Theory in the SME context, demonstrating that agility functions as the dynamic capability through which digital resources are converted into competitive advantage. Second, it identifies a boundary condition for digitalization's strategic value: without agility, digital investments do not produce SCA. Third, it contributes a parsimonious, validated measurement model that future researchers can adapt for longitudinal or comparative studies.

Practical implications. For SME managers, the message is clear: digitalization spending should be accompanied by deliberate investment in agility-building. Specific recommendations include: (1) prioritizing integrated information systems and process automation over customer-facing digital tools, given their stronger association with agility; (2) implementing rapid decision-making protocols and cross-functional team structures; (3) establishing regular environmental scanning routines to enhance sensing capabilities. Managers should monitor agility indicators—such as time-to-decision on market opportunities and resource reallocation speed—alongside digital adoption metrics. For policymakers, SME digitalization support programs should incorporate agility assessment and development components rather than focusing solely on technology access.

5.3 Limitations

1. **Cross-sectional design.** The data represent a single time point, precluding definitive causal inference. While the mediation model is theoretically grounded, reverse causality (agile firms may adopt more digital tools) cannot be ruled out.

2. **Self-reported measures.** All constructs are measured perceptually, which may introduce social desirability or recall bias. Objective digitalization metrics (e.g., system logs, investment data) would strengthen validity.

3. **Sample representativeness.** While stratified sampling ensured sector and size diversity, the geographic concentration in one urban region limits generalizability to SMEs in other contexts.

4. **Common method bias.** Harman's test indicated no substantial CMB, but the single-source design remains a limitation that multi-source data collection could address.

5.4 Future Research Directions

1. **Longitudinal designs** examining how digitalization-agility-SCA relationships evolve over time, particularly across digital transformation phases.
2. **Multi-level studies** incorporating objective digitalization metrics alongside perceptual measures to reduce common method concerns.
3. **Comparative analyses** across urban versus rural SMEs, testing whether the mediation model holds when infrastructure and competitive conditions differ.
4. **Sector-specific investigations** examining whether the digitalization-agility-SCA pathway differs for service versus manufacturing SMEs.

6. Conclusion

This study examined the relationship between digitalization, organizational agility, and sustainable competitive advantage among urban SMEs, finding that organizational agility fully mediates the digitalization-SCA relationship, accounting for 89.4% of the total effect. The validated PLS-SEM model demonstrates that digitalization alone does not produce sustainable competitive advantage; rather, its strategic value is unlocked through the development of organizational agility. For practitioners, the takeaway is actionable: digital investment decisions should be evaluated not merely by technology adoption metrics but by their contribution to sensing, decision-making speed, and resource flexibility. The framework offers a replicable measurement and analytical approach for future SME strategy research. As urban SMEs continue to navigate an increasingly digital and volatile competitive landscape, the capacity to convert digital resources into agile responses will remain the defining determinant of sustained advantage.

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