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Knowledge-Sharing Climate and Innovation Capacity in Small Enterprises

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Abstract

Small enterprises frequently operate with limited financial resources, compact workforces, informal organizational structures, and strong dependence on the experience of owners and employees. Under these conditions, organizational knowledge can become a strategically important resource for innovation, yet its value depends substantially on whether employees are willing and able to exchange what they know. This study examines the relationship between knowledge-sharing climate and innovation capacity in small enterprises, conceptualizing knowledge-sharing climate as a collective environment in which expertise, practical experience, customer information, technical lessons, unsuccessful experiments, and emerging ideas can move openly across organizational boundaries. Drawing on the knowledge-based view, organizational knowledge-creation theory, open-innovation research, and contemporary SME scholarship, the study proposes that innovation capacity is strengthened by peer expertise exchange, owner-manager support, cross-functional dialogue, digital collaboration, and external network sharing.

Because no original enterprise-level dataset was provided, the analytical component uses a transparent simulation-based methodology rather than presenting invented observations as empirical findings. Six hundred synthetic small-enterprise profiles were modeled across low, moderate, and high knowledge-sharing climate conditions. The simulated Innovation Capacity Index increased from 46.8 in the low-sharing condition to 66.7 in the moderate condition and 81.7 in the high condition. An illustrative contribution model allocated 30% of innovation-supporting influence to peer expertise exchange, 24% to owner-manager support, 18% to cross-functional dialogue, 16% to digital collaboration, and 12% to external network sharing.

These proportions represent theoretical model assumptions rather than measured causal effects. The study concludes that small-enterprise innovation is likely to depend not merely on possessing knowledgeable individuals but on creating everyday conditions through which knowledge becomes accessible, recombinable, testable, and applicable to new products, services, processes, and business practices. The proposed framework offers a foundation for future empirical validation in geographically and sectorally diverse small-enterprise populations.

***Keywords*:** Knowledge-Sharing Climate, Small Enterprises, Innovation Capacity, Knowledge Management, SMEs, Organizational Learning, Open Innovation, Tacit Knowledge, Digital Collaboration, Entrepreneurial Innovation

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1. Introduction

Small enterprises occupy a distinctive position in innovation systems. Their relatively compact structures can enable faster communication, shorter decision chains, close customer relationships, and rapid experimentation, yet the same organizations frequently face resource constraints, limited specialist staffing, weak formal knowledge-management systems, and dependence on a small number of key individuals. Contemporary research on SME digital transformation continues to identify knowledge management as an important organizational capability because technology adoption alone does not ensure that information is interpreted, shared, and converted into commercially meaningful action. Hafeez and colleagues' systematic review of SME digital transformation emphasizes the importance of knowledge-management processes alongside technological capabilities, while recent evidence from SMEs also connects knowledge sharing with digital transformation, open innovation, and organizational agility.

Knowledge within a small enterprise is rarely confined to formal documents. It is embedded in production routines, customer conversations, supplier relationships, employee experience, troubleshooting practices, product modifications, technical mistakes, and informal observations about changing markets. Nonaka's organizational knowledge-creation theory established the importance of interaction between tacit and explicit forms of knowledge, while Wang and Noe later demonstrated through their review that knowledge sharing depends on individual, interpersonal, organizational, and contextual conditions. Knowledge therefore becomes economically valuable not simply because it exists but because organizational members can communicate, interpret, combine, and apply it.

This requirement is particularly important for innovation. Small enterprises may not possess dedicated research laboratories or large innovation budgets; consequently, innovation frequently emerges through cumulative learning, employee suggestions, adaptation of customer feedback, supplier knowledge, experimentation, and recombination of existing expertise. Research among informal-economy SMEs has linked knowledge transfer with innovation performance, while subsequent evidence indicates that knowledge sharing can support innovation through open-innovation mechanisms. Recent Indian SME research also reports that intellectual-capital dimensions influence knowledge sharing and that knowledge sharing is associated with innovation performance.

However, a distinction must be made between isolated acts of knowledge exchange and a persistent knowledge-sharing climate. Employees may occasionally share information because a manager asks for it while still working in an environment characterized by knowledge hoarding, status barriers, fear of criticism, functional isolation, or inadequate opportunities for interaction. A genuine knowledge-sharing climate exists when exchanging know-how becomes an ordinary and socially supported part of organizational work. Recent SME research increasingly emphasizes networks, social capital, digital collaboration, and purposeful knowledge sharing, suggesting that innovation depends on both access to knowledge and the social conditions through which that knowledge circulates.

Existing studies provide strong evidence concerning knowledge transfer, intellectual capital, open innovation, digital transformation, and external SME networks; however, these streams are often examined separately. Taken together, the literature suggests a need for a more integrated explanation of how an internal climate of everyday knowledge sharing can develop innovation capacity in resource-constrained small enterprises while interacting with digital and external knowledge channels. The

present study addresses this gap by conceptualizing innovation capacity as the organization's readiness to recognize opportunities, combine expertise, experiment with alternatives, solve unfamiliar problems, and convert accumulated knowledge into useful changes.

2. Objectives of the Study

2.1 To Examine Knowledge-Sharing Climate in Small Enterprises

The first objective is to examine knowledge-sharing climate as an organizational condition rather than a collection of isolated communication events. The study focuses on whether employees can routinely exchange technical knowledge, practical experience, customer insights, unsuccessful approaches, emerging opportunities, and problem-solving ideas without excessive structural or interpersonal barriers.

2.2 To Identify Knowledge-Sharing Mechanisms Supporting Innovation

The second objective is to assess five mechanisms through which knowledge may contribute to innovation capacity: peer expertise exchange, owner-manager support, cross-functional dialogue, digital collaboration, and external network sharing. These mechanisms represent internal and external channels through which small enterprises can broaden and recombine their knowledge base.

2.3 To Develop a Testable Innovation-Capacity Framework

The third objective is to develop a transparent analytical model that can subsequently be tested with real small-enterprise data. The present simulation is intended to demonstrate theoretical relationships and operationalization rather than to claim population-level effects.

3. Review of Literature

3.1 Knowledge Creation and the Organizational Sharing Climate

Nonaka conceptualized organizational knowledge creation as a dynamic process through which individual knowledge becomes amplified and integrated within the organization. His framework emphasizes continuous interaction between tacit and explicit knowledge rather than knowledge as a static organizational possession. This perspective is highly relevant to small enterprises because much commercially useful knowledge is experiential and may remain concentrated in the minds of founders, technicians, sales personnel, or experienced employees.

Wang and Noe's review subsequently demonstrated that knowledge-sharing behavior is influenced by organizational climate, management support, interpersonal characteristics, motivation, and technological factors. Ahmad and Karim's systematic review likewise identified multiple organizational outcomes associated with knowledge sharing, reinforcing the importance of understanding sharing as an enabling organizational process rather than as simple information transmission.

For small enterprises, the concept of climate is especially important because knowledge practices are frequently informal. A formal database may contain explicit procedures, yet employees often require conversation and interaction to understand how a procedure should be adapted under unusual operating circumstances. Knowledge sharing therefore becomes valuable when employees have both opportunities and social permission to contribute what they know.

3.2 Knowledge Sharing and SME Innovation

Research provides growing support for the connection between knowledge flows and innovation performance in SMEs. Ibidunni and colleagues examined informal-economy enterprises and reported meaningful relationships between knowledge transfer and innovation performance, highlighting the value of learning acquired through business relationships and organizational development.

Zan and colleagues further investigated knowledge sharing and innovation performance among SMEs and identified open innovation as an important mediating mechanism. Their findings suggest that firms can improve innovation outcomes by combining internal information exchange with knowledge exploration beyond organizational boundaries.

Kumar and colleagues' more recent investigation of SMEs in India's National Capital Region found that human, relational, and structural intellectual-capital dimensions affected knowledge sharing and that knowledge sharing itself was significantly associated with innovation performance. These findings reinforce the argument that innovation capacity depends not simply on hiring knowledgeable individuals but on creating organizational processes that permit their knowledge to circulate.

3.3 External Networks, Digital Collaboration, and Knowledge Recombination

Innovation in small enterprises can also depend on knowledge that originates outside the organization. Zeng, Xie, and Tam's research on manufacturing SMEs demonstrated the importance of cooperation networks for innovation, illustrating that relationships with customers, suppliers, institutions, and other organizations can broaden the knowledge available to smaller firms.

More recent research extends this perspective. Ibidunni's study of developing-economy SMEs found that cross-border knowledge transfer, localization of knowledge, and industry networks jointly influence innovation performance. Capó-Vicedo and colleagues similarly propose that social capital, network structure, and social-networking technologies facilitate tacit knowledge flows across SME ecosystems.

Digital collaboration adds another layer. Hafeez and colleagues' 2025 review identifies knowledge management as central to SME digital transformation, while Bux, Zhu, and Devi report relationships among knowledge sharing, digital transformation, open innovation, and organizational agility in SMEs. The emerging evidence therefore suggests that small enterprises benefit most when internal knowledge exchange, digital tools, and external learning operate as mutually reinforcing rather than isolated systems.

4. Research Methodology

4.1 Research Design

The study adopts a conceptual-methodological simulation design.

No original questionnaires, interviews, employee records, financial records, innovation audits, or enterprise surveys were supplied for the present manuscript. Accordingly, numerical values reported below are not represented as observed small-enterprise data.

A synthetic analytical population of 600 enterprise profiles was modeled and allocated equally across three knowledge-sharing climate conditions:

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Low Knowledge-Sharing Climate: 200 synthetic profiles Moderate Knowledge-Sharing Climate: 200 synthetic profiles High Knowledge-Sharing Climate: 200 synthetic profiles
The purpose is to examine whether the proposed theoretical structure produces internally coherent innovation-capacity patterns.

4.2 Variables and Measurement Framework

Table 1. Operational Framework of Knowledge-Sharing Climate

Construct	Operational Meaning	Scale	Expected Relationship
Peer Expertise Exchange	Routine sharing of technical skills, experience, solutions, and work-related know-how among employees	0–100	Positive
Owner-Manager Support	Extent to which owners/managers encourage questions, sharing, experimentation, and collaborative problem solving	0–100	Positive
Cross-Functional Dialogue	Exchange of knowledge across operational, sales, customer-service, administrative, and technical roles	0–100	Positive
Digital Collaboration	Use of digital communication, shared files, knowledge repositories, messaging, and collaborative tools	0–100	Positive
External Network Sharing	Knowledge obtained through customers, suppliers, industry peers, institutions, and professional networks	0–100	Positive
Innovation Capacity Index	Organizational readiness to identify, test, combine, and implement new ideas	0–100	Outcome

4.3 Simulation Procedure

The analytical model assigns the following illustrative contribution weights:

Innovation Capacity = 0.30(PEE) + 0.24(OMS) + 0.18(CFD) + 0.16(DC) + 0.12(ENS) + ε

where:

PEE = Peer Expertise Exchange OMS = Owner-Manager Support CFD = Cross-Functional Dialogue DC = Digital Collaboration ENS = External Network Sharing ε = controlled random variation representing unmodeled organizational influences

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The weights are theoretical assumptions created for simulation. They are not regression coefficients obtained from actual enterprises.

A fixed random seed was used to improve reproducibility of the synthetic analysis. All modeled constructs were bounded between 0 and 100.

5. Analysis

5.1 Innovation Capacity Across Knowledge-Sharing Conditions

The simulation generated a clear increase in innovation capacity as the knowledge-sharing climate strengthened.

Table 2. Simulated Knowledge-Sharing and Innovation Outcomes

Analytical Indicator	Low Climate	Moderate Climate	High Climate
Peer Expertise Exchange	49.0	67.9	84.4
Owner-Manager Support	46.9	67.1	81.4
Cross-Functional Dialogue	49.9	69.2	81.5
Digital Collaboration	44.3	64.2	80.2
External Network Sharing	42.2	62.4	78.2
Innovation Capacity Index	**46.8**	**66.7**	**81.7**

Note: All values are simulation-generated scores on a 0–100 scale and do not represent observations collected from actual enterprises.

The Innovation Capacity Index increased by 19.9 points between the low and moderate knowledge-sharing conditions and by another 15.0 points between the moderate and high conditions. The total modeled difference between the low- and high-sharing environments was 34.9 points.

This pattern represents the internal behavior of the theoretical model rather than an estimated causal effect.

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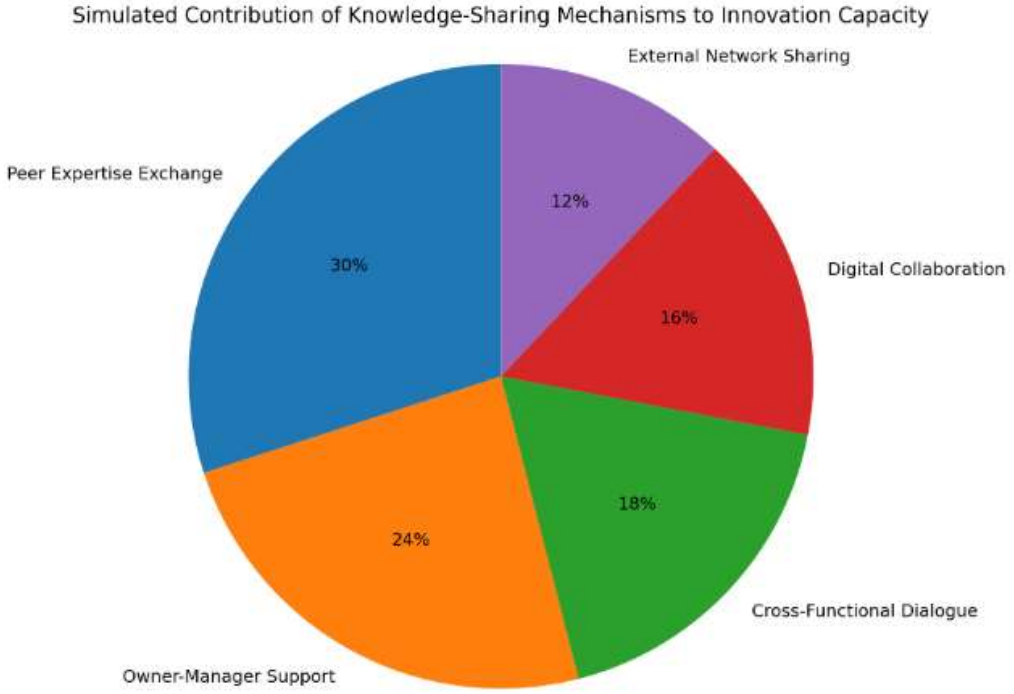
5.2 Relative Knowledge-Sharing Contribution

Figure 1: Simulated Contribution of Knowledge-Sharing Mechanisms to Innovation Capacity



The pie chart allocates the modeled innovation-supporting contribution as follows:

Peer Expertise Exchange — 30% Owner-Manager Support — 24% Cross-Functional Dialogue — 18% Digital Collaboration — 16% External Network Sharing — 12%

These percentages do not represent empirical variance explained. They visualize the weighting assumptions used in the simulation.

The largest illustrative share is assigned to peer expertise exchange because employees are often the immediate carriers of tacit operational knowledge. Owner-manager support receives the second-largest share because small-enterprise owners commonly exercise substantial influence over communication norms, resource allocation, experimentation, and willingness to accept mistakes.

5.3 From Knowledge Exchange to Innovation Capacity

The simulation suggests that knowledge becomes innovation-relevant through three broad stages.

First, knowledge must become accessible. Employees need opportunities to share what they have learned from customers, machinery, service failures, suppliers, production problems, and market changes.

Second, knowledge must be recombined. Ideas originating from different roles need to be connected rather than remaining within individual functional areas.

Third, knowledge must be applied. Information exchange that never influences products, services, decisions, processes, or experiments is unlikely to strengthen innovation capacity.

This mechanism is consistent with contemporary evidence connecting knowledge sharing with open innovation, digital transformation, organizational agility, and SME innovation performance.

6. Discussion

6.1 Why a Sharing Climate Matters More Than Knowledge Possession

The principal implication of the study is that small enterprises should distinguish between having knowledge and mobilizing knowledge.

A business may employ highly experienced individuals while still possessing weak organizational innovation capacity if expertise remains personally held. Knowledge concentration can create operational dependence on particular employees and can prevent learning from spreading across the enterprise.

This problem becomes especially important for tacit knowledge. Employees often know how to identify an early production problem, negotiate with a particular type of customer, modify a process, or avoid a recurring error without being able to express the knowledge fully in a formal document.

A strong knowledge-sharing climate creates repeated opportunities through which this experience becomes organizationally available.

Nonaka's knowledge-creation perspective provides the theoretical foundation for this interpretation, while contemporary SME studies show that knowledge sharing, localization, and purposeful exchange remain significant for innovation performance.

6.2 Owner-Managers as Knowledge-Climate Architects

Small-enterprise leadership deserves particular attention.

In larger organizations, knowledge systems may be institutionalized through dedicated departments, formal databases, standardized training, and specialized innovation functions. Small enterprises often rely more directly on owner-manager behavior.

An owner who treats questioning as disloyalty can discourage knowledge exchange even when collaborative software is available.

Conversely, an owner who asks employees what they have learned, encourages experimentation, openly discusses mistakes, and recognizes useful suggestions can create knowledge-sharing routines without expensive knowledge-management infrastructure.

This makes leadership support an important bridge between individual expertise and organizational innovation.

Recent evidence also indicates that leadership conditions can influence the relationship among knowledge sharing, digital transformation, open innovation, and organizational agility.

Practical approaches may include brief problem-solving meetings, after-action discussions, cross-role demonstrations, shared customer-feedback reviews, employee idea sessions, and systematic documentation of recurring operational lessons.

6.3 Digital Tools, Networks, and Practical Implications

Digital technologies can help small enterprises preserve and distribute knowledge, but technology should support rather than replace human interaction.

A messaging platform can accelerate information exchange. A shared document repository can prevent repeated rediscovery of the same solution. A customer-management system can preserve commercial information. Collaborative platforms can also connect geographically separated employees. However, digital infrastructure creates limited value if employees do not trust one another, managers discourage knowledge contribution, or information is stored without being interpreted and used.

This observation is consistent with recent SME digital-transformation research emphasizing the interaction between technological and knowledge-management capabilities.

External networks are equally important. Suppliers may provide process expertise, customers can reveal unmet needs, professional networks can expose firms to emerging practices, and collaborations can provide technical knowledge that a small enterprise cannot economically generate internally. Research on SME networks and cross-border knowledge transfer reinforces the importance of these external knowledge channels for innovation.

7. Conclusion

This study examined knowledge-sharing climate as a strategic foundation for innovation capacity in small enterprises. The central argument is that innovation does not depend solely on the quantity of knowledge available within an organization. Its practical value depends on whether that knowledge can move between people, functions, technological systems, and external relationships.

The proposed framework identifies five complementary mechanisms: peer expertise exchange, owner-manager support, cross-functional dialogue, digital collaboration, and external network sharing. The simulation generated an Innovation Capacity Index of 46.8 under low knowledge-sharing conditions, 66.7 under moderate conditions, and 81.7 under high conditions. These values are theoretical model outputs and should not be interpreted as measured effects.

The study further proposes that peer expertise exchange and owner-manager support are particularly important within small enterprises because organizational knowledge is frequently concentrated in individuals and because founders or owners often have direct influence over everyday communication norms.

Digital technologies expand the capacity to preserve and circulate knowledge, while external networks provide access to expertise that resource-constrained enterprises cannot always generate internally. Neither mechanism is sufficient independently.

The broader managerial implication is that small enterprises do not necessarily need sophisticated knowledge-management infrastructure before they can strengthen innovation. They first need a working environment in which employees are expected to share expertise, questions are treated as learning opportunities, functional barriers are reduced, useful knowledge is retained, external information is actively interpreted, and new combinations of knowledge can be tested.

A small enterprise becomes more innovative not simply when its people know more, but when the organization becomes better at sharing, combining, learning from, and applying what its people know.

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