

## HUMAN CAPITAL DEVELOPMENT AND DIGITAL CAPABILITY BUILDING IN SMES: A SYSTEMATIC LITERATURE REVIEW OF LEARNING MECHANISMS

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### Abstract

Small and medium-sized enterprises (SMEs) increasingly operate in environments in which digital technologies reshape customer interfaces, operations, innovation, and business models. Yet digital capability is not created by technology acquisition alone. It depends on the ability of owners, managers, and employees to acquire, interpret, share, apply, and renew knowledge. This systematic literature review synthesizes research on the learning mechanisms through which human capital development contributes to digital capability building in SMEs. The review integrates human capital theory, organizational learning, absorptive capacity, knowledge-based views, and dynamic capabilities. The evidence indicates six mutually reinforcing mechanisms: formal training and structured development; experiential and learning by doing processes; social and peer learning; external knowledge acquisition and network learning; knowledge sharing and organizational memory; and reflective, exploratory learning that supports sensing, seizing, and reconfiguring. A central finding is that human capital produces digital capability when individual knowledge is converted into organizational routines rather than remaining as isolated skills. SMEs face distinctive constraints, including limited training budgets, managerial bandwidth, employee multitasking, and dependence on external providers, which make informal and networked learning especially important. The review proposes a process model in which human capital provides the knowledge base, learning mechanisms transform individual and external knowledge into shared organizational knowledge, absorptive capacity enables assimilation and application, and dynamic capabilities convert accumulated knowledge into digital infrastructure, digital processes, analytics, innovation, and business model renewal. The article closes with implications for SME managers, policymakers, training providers, and future research, with particular attention to longitudinal and emerging-market contexts.

**Keywords:** *human capital; SMEs; digital capability; digital transformation; organizational learning; absorptive capacity; dynamic capabilities; learning mechanisms*

### INTRODUCTION

Digital transformation has shifted from a question of technology adoption to one of organizational capability. The literature distinguishes digitization, digitalization, and broader digital transformation, emphasizing that transformation changes how firms create and capture value and therefore requires complementary structures, capabilities, and new ways of organizing work (Verhoef et al., 2021; Vial, 2019). In SMEs, this issue is particularly consequential because resource limitations make the alignment between people, knowledge, and technology more visible than in large firms. Recent systematic reviews show that SMEs often struggle not because digital technologies are unavailable, but because the organization lacks strategic knowledge, implementation capacity, and continuous learning routines (Sagala & Öri, 2024). Human capital is central to this challenge. In human capital theory, education, knowledge, and skills are productive assets because they raise individuals' capacity to perform economically valuable activities. In the SME context, however, the relevant unit is not limited to the employee. Owners and managers frequently combine strategic, technical, commercial, and operational roles, while a small number of employees may

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collectively hold a large share of the firm's knowledge. Consequently, human capital development can influence digital capability through individual skills, managerial cognition, coordination, and the organization's ability to learn from experience and external actors. The organizational learning literature offers a bridge between individual human capital and organizational capability. Huber (1991) conceptualized organizational learning through knowledge acquisition, information distribution, information interpretation, and organizational memory. March (1991) further distinguished exploration of new possibilities from exploitation of existing knowledge. These perspectives imply that digital capability emerges when learning is repeated, shared, interpreted, and embedded in routines rather than when employees merely attend training. Absorptive capacity adds another layer: firms must recognize the value of external knowledge, assimilate it, transform it, and exploit it (Cohen & Levinthal, 1990; Zahra & George, 2002).

This review addresses a specific gap. Research on SME digital transformation has expanded rapidly, but learning is often treated as a background antecedent—such as a skill gap, training need, or managerial characteristic—rather than as a set of mechanisms explaining how human capital becomes digital capability. Recent evidence strengthens the case for a mechanism-based view. Zheng et al. (2026), for example, found that organizational learning is positively associated with SME digitalization capabilities and that foundational digital infrastructure can mediate the path toward advanced digital analysis. In Indonesia, Afrianty et al. (2026) similarly identify knowledge acquisition and digital literacy as sequential mechanisms translating internal and relational resources into digital business transformation. Accordingly, the purpose of this article is to synthesize the literature around one question: through which learning mechanisms does human capital development contribute to digital capability building in SMEs? The review contributes a process-oriented framework that links individual human capital to organizational learning, absorptive capacity, and dynamic capabilities. It also distinguishes learning mechanisms according to where knowledge originates, how it is processed, and how it becomes embedded in organizational action.

## LITERATURE REVIEW

### THEORETICAL FOUNDATIONS

#### Human Capital as a Capability Input

Human capital refers broadly to knowledge, skills, competencies, experience, and other productive attributes embodied in people. For SMEs, the concept is especially important because the boundary between human capital and organizational resources is often thin: owner-managers may embody strategic and technical knowledge; experienced employees may carry tacit customer or process knowledge; and digital specialists may become pivotal nodes for transformation. From a resource-based perspective, human capital can become strategically valuable when its knowledge is difficult to substitute and is integrated into firm-specific routines. Yet human capital should not be equated with digital capability. A person may possess digital skills without the firm being able to deploy those skills consistently across processes.

This distinction matters because digital capability is an organizational property. It involves the capacity to use digital technologies, data, and digital processes to perform and renew business activities. Verhoef et al. (2021) emphasize that transformation entails new capabilities and organizational arrangements, while Warner and Wäger (2019) describe digital transformation as an ongoing process of strategic renewal supported by dynamic capabilities. Thus, human capital is better understood as a capability input that must be transformed through learning and organizational mechanisms.

#### Organizational Learning and Knowledge Conversion

Organizational learning explains how organizations acquire and process knowledge. Huber (1991) identified knowledge acquisition, information distribution, information interpretation, and organizational memory as core processes. These processes provide a useful lens for SMEs because digital transformation typically introduces information that must move from individuals or external partners into shared understanding and routines. Learning from experience is particularly relevant where formal systems are weak: firms experiment with e-commerce tools, digital marketing, accounting software, customer relationship systems, or data analytics and then refine practices through feedback. March's (1991) exploration-exploitation distinction adds a temporal dimension. SMEs need exploration to discover new technologies and business opportunities, but they also need exploitation to stabilize useful tools and procedures. Digital capability building therefore contains a tension between experimentation and

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standardization. Too much exploration may produce fragmented technology adoption; too much exploitation may lock the SME into routines that quickly become obsolete.

## Absorptive Capacity

Cohen and Levinthal (1990) define absorptive capacity in terms of recognizing the value of external knowledge, assimilating it, and applying it to commercial ends. Zahra and George (2002) extend this logic by distinguishing potential absorptive capacity—acquisition and assimilation—from realized absorptive capacity—transformation and exploitation. This distinction is highly relevant to SMEs because many rely on external vendors, consultants, business associations, customers, platform providers, and peer entrepreneurs for digital knowledge. Exposure to external knowledge alone does not create capability. The SME must possess sufficient prior knowledge and internal learning infrastructure to understand and apply what it encounters.

## Dynamic Capabilities

Dynamic capabilities focus on a firm's ability to integrate, build, and reconfigure competences in changing environments (Teece et al., 1997). In digital contexts, dynamic capabilities help explain why capability building is continuous rather than one-off. Warner and Wäger (2019) show that digital transformation involves strategic renewal, including changes in business models, collaboration, and organizational culture. Recent SME evidence likewise indicates that organizational learning can shape foundational digital infrastructure and then support more advanced digital analysis (Zheng et al., 2026). Human capital therefore matters not simply because skilled employees can operate technology, but because learning-enabled people help the firm sense change, seize opportunities, and reconfigure routines.

## METHOD

This article follows the logic of a systematic literature review (SLR) in management research, drawing on the evidence-oriented principles articulated by Tranfield et al. (2003) and the reporting logic of PRISMA 2020 (Page et al., 2021). The review was designed around the intersection of four concept domains: (1) human capital and employee/manager development, (2) SMEs, (3) digital capability or digital transformation, and (4) organizational learning or learning mechanisms. The purpose was conceptual synthesis rather than meta-analysis because the literature varies substantially in constructs, samples, methods, and outcome measures. Searches were conducted using combinations of terms such as “SME”/“small and medium-sized enterprise”, “human capital”, “digital capability”, “digital transformation”, “organizational learning”, “training”, “knowledge acquisition”, “absorptive capacity”, “learning by doing”, “knowledge sharing”, and “digital skills”. Priority was given to peer-reviewed journal articles, systematic reviews, and foundational theoretical publications. Recent studies published in 2024–2026 were included to reflect the rapidly changing digital context. Screening emphasized conceptual relevance to the research question, explicit treatment of SMEs or transferable small-firm mechanisms, and evidence concerning learning or capability formation.

Because a direct bibliographic export from proprietary databases such as Scopus or Web of Science was not available in this writing environment, the review does not invent database-specific record counts or a numerical PRISMA flow. Instead, it transparently uses a structured, evidence-traceable corpus of scholarly sources identified through academic publisher and research-index pages. This limitation affects reproducibility at the database-count level but not the conceptual synthesis of the cited studies. The resulting review should therefore be treated as a rigorous manuscript draft and can be upgraded to a fully reproducible database SLR by rerunning the protocol in Scopus/Web of Science and inserting the verified screening counts.

## RESULTS

The literature converges on the idea that SME digital capability is built through a chain of learning processes rather than through a single intervention. Six mechanisms recur across the literature and can be organized according to the transformation of knowledge: formal development creates initial human capital; experience turns skills into situated know-how; social and peer learning distributes knowledge; external learning expands the knowledge base; knowledge

sharing and memory embed knowledge; and reflective exploration/reconfiguration turns accumulated knowledge into adaptive digital capability.

Table 1. Learning mechanisms through which human capital contributes to SME digital capability

| Mechanism                     | Primary knowledge source                                   | Conversion process                             | Digital outcome capability                                |
|-------------------------------|------------------------------------------------------------|------------------------------------------------|-----------------------------------------------------------|
| Formal training & development | Courses, vendors, universities, certifications             | Skill acquisition and conceptual understanding | Digital literacy, tool competence, technical confidence   |
| Experiential learning         | Work tasks, experimentation, problem-solving               | Learning-by-doing and feedback                 | Process competence, implementation routines               |
| Social/peer learning          | Employees, owners, communities of practice                 | Observation, coaching, imitation, discussion   | Shared know-how and faster adoption                       |
| External/network learning     | Customers, suppliers, platforms, consultants, associations | Knowledge acquisition and assimilation         | Broader technological repertoire and absorptive capacity  |
| Knowledge sharing & memory    | Internal communication and documentation                   | Distribution, interpretation, codification     | Repeatable routines and organizational continuity         |
| Exploration & reconfiguration | Experiments, strategic reflection, environmental sensing   | Transformative learning and resource renewal   | Analytics, innovation, business model and process renewal |

Formal Training and Structured Development

Formal training remains the most visible human capital mechanism, but the literature suggests that its value is conditional on transfer into work. Training can create foundational digital literacy, conceptual understanding, and confidence in using software, platforms, or data tools. Sagala and Ori (2024) explicitly identify education and continuous learning as important conditions for SME digital transformation. Recent Indonesian evidence also highlights digital training and development as part of strategic HRM in Indonesian MSMEs and startups (Alexandro, 2025), indicating that training is increasingly framed as an organizational capability rather than an isolated HR activity. The key limitation is that classroom or webinar participation does not by itself establish an organizational routine. The transfer problem is particularly acute in SMEs. Employees may return to the same workload, legacy processes, and informal coordination patterns. Training therefore contributes most when it is role-specific, problem-centered, and followed by opportunities to practice. Digital training can be strengthened by vendor demonstrations, guided implementation, peer coaching, and small projects in which the learner must use the technology to solve an actual business problem. The mechanism can be represented as training -> individual knowledge -> practice -> feedback -> routine. Without the practice and feedback stages, the chain is incomplete.

Experiential Learning and Learning by Doing

Learning by doing is especially important for SMEs because digital capability frequently emerges through experimentation under resource constraints. Huber (1991) includes learning from experience as a major source of organizational knowledge, while March (1991) emphasizes how organizations balance exploration and exploitation. In digital adoption, experiential learning appears when employees test a new social-commerce channel, automate a report, configure a cloud application, experiment with digital advertising, or respond to customer data. The resulting knowledge is context-specific: it is tied to the firm’s customers, routines, constraints, and market context. Experiential learning also explains why incremental digitalization is often practical for SMEs. Rather than attempting a large

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transformation program, a firm can select a bounded process, introduce a tool, monitor outcomes, and adapt. Recent SME SLR evidence recommends incremental and continuously improving digitalization, aligned with the firm's baseline and resource constraints (Sagala & Öri, 2024). This suggests that digital capability accumulates path-dependently through repeated cycles of action, feedback, and adjustment rather than by importing a "best practice" in one step.

## Social and Peer Learning

SMEs are embedded in dense social relationships, and learning is often distributed through observation, mentoring, peer exchange, and informal problem-solving. Huber (1991) identifies learning by observing other organizations as a distinct form of knowledge acquisition. In practice, owners may learn from other entrepreneurs, employees learn from colleagues who have used a tool before, and firms learn from online business communities or local associations. Social learning reduces the cost of experimentation because actors can observe solutions before making full investments. The mechanism becomes more powerful when SMEs cultivate a climate in which questions, mistakes, and small experiments are discussable. Digital capability is not merely the sum of individual skill levels; it depends on whether knowledge can travel across people. This is consistent with recent Indonesian research showing that social capital is associated with knowledge acquisition and, sequentially, with digital literacy and digital transformation among small businesses (Afrianty et al., 2026). The implication is that networking should be treated as learning infrastructure rather than simply as a source of contacts.

## External Knowledge Acquisition and Network Learning

Digital technologies often evolve faster than many SMEs can learn internally. External learning therefore becomes a strategic necessity. Customers reveal changing expectations; suppliers provide technology knowledge; platforms expose firms to new operating models; consultants transfer specialized skills; universities and training providers offer structured knowledge; and government or industry programs can reduce information barriers. This mechanism maps directly onto the concept of absorptive capacity: firms need to acquire and assimilate knowledge before they can transform and exploit it (Cohen & Levinthal, 1990; Zahra & George, 2002). The literature also suggests that external learning is not neutral across contexts. Hafeez et al. (2025) systematically review SME knowledge management and digital transformation and differentiate between core value-chain collaborations that support knowledge exploration/exploitation and broader ecosystem or innovation-platform collaborations that can support more ambidextrous learning. The implication is that network learning can provide both specialized knowledge and strategic variety. Recent evidence from Chinese SMEs further shows that internal and external organizational learning have distinct relationships with digital infrastructure under changing environmental conditions (Zheng et al., 2026).

## Knowledge Sharing, Interpretation, and Organizational Memory

Human capital creates value only when knowledge remains available beyond the individual who initially possesses it. Huber's (1991) framework highlights information distribution, interpretation, and organizational memory. In SMEs, knowledge sharing can take lightweight forms: shared checklists, process notes, customer-data conventions, short internal demonstrations, recorded tutorials, or simple dashboards. These practices reduce the risk that digital capability disappears when an employee leaves and help convert tacit learning into routines that others can reuse. Organizational memory is particularly important during scaling. An SME may initially rely on an owner-manager's personal knowledge, but digitalization creates more interdependencies among marketing, sales, finance, operations, and customer service. Documentation and shared interpretation become coordination mechanisms. Thus, human capital development should be evaluated not only by "skills acquired" but also by the organization's ability to retain and redeploy knowledge.

## Exploration, Reflection, and Reconfiguration

The most advanced mechanism involves reflective and exploratory learning that changes the firm's underlying routines. Dynamic capabilities theory suggests that firms in changing environments must continually sense opportunities, seize them, and reconfigure resources and processes (Teece et al., 1997; Warner & Wäger, 2019). Digital capability is renewed when SMEs review what is working, interpret new technologies or customer signals, challenge

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existing assumptions, and redesign their processes. This goes beyond operational competence. It involves learning that questions the current way of doing business. Recent evidence provides a direct illustration. Zheng et al. (2026) report that organizational learning is positively related to both fundamental digital infrastructure and advanced digital analysis, with infrastructure mediating part of the path. The finding supports a layered view: learning first strengthens the foundations that make digital use possible, then enables more sophisticated analytics and decision-making. The mechanism is cumulative, but it is also recursive because advanced digital analysis generates new information that can restart the learning cycle.

**Integrative Framework**

The synthesis supports an integrated mechanism model in which human capital development operates through successive stages of knowledge conversion. At the first level, individuals build knowledge, skills, confidence, and digital literacy. At the second level, organizational learning mechanisms distribute and interpret these capabilities through practice, peer interaction, external knowledge acquisition, and shared reflection. At the third level, absorptive capacity enables the SME to filter external information and convert it into firm-specific knowledge. At the fourth level, dynamic capabilities translate accumulated knowledge into digital infrastructure, digital processes, analytics, innovation, and business model renewal.

**Figure 1. Proposed process model of learning-driven digital capability building**

|                                               |                                                             |                                                        |                                                            |                                                |                                                           |                                                  |
|-----------------------------------------------|-------------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------------|------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|
| Human capital (knowledge, skills, experience) | Learning mechanisms (training, experience, peers, networks) | Knowledge processing (sharing, interpretation, memory) | Absorptive capacity (acquire-assimilate-transform-exploit) | Dynamic capabilities (sense-seize-reconfigure) | Digital capability (infrastructure, processes, analytics) | Renewal (innovation, resilience, business model) |
|-----------------------------------------------|-------------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------------|------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|

*The model is recursive: digital use generates experience and data that feed into the next cycle of human capital and organizational learning.*

This framework yields four propositions for future empirical testing. First, human capital development should have a stronger association with digital capability when learning is embedded in work rather than delivered only through formal training. Second, external learning should have a stronger effect when SMEs possess higher absorptive capacity and prior digital knowledge. Third, knowledge sharing and organizational memory should mediate the relationship between individual digital skills and organizational digital capability. Fourth, the relationship between learning and digital capability should become increasingly reciprocal as analytics and digital systems generate feedback that improves subsequent learning.

**DISCUSSION**

**From “skills shortage” to capability-conversion problem**

A recurring managerial narrative frames SME digital transformation primarily as a skills shortage. The SLR suggests a more precise interpretation. Skills matter, but the central challenge is knowledge conversion: how does an SME transform individual knowledge into shared, repeatable, and strategically relevant capability? This distinction explains why two firms with similar access to training can generate different digital outcomes. One may create opportunities for practice, knowledge sharing, and experimentation; the other may leave new skills isolated within an employee’s role. The implication is that human capital metrics should be complemented by learning-process metrics. Useful indicators include the frequency of cross-functional knowledge sharing, time from training to application, number of improvement experiments, extent of documentation, supplier/customer learning interactions, and evidence that digital practices are being standardized or renewed. Such measures capture the organizational mechanisms that make human capital productive.

**The SME paradox: fewer resources but stronger informal learning**

SMEs face financial and managerial constraints that limit formal development budgets. Yet their small size can support rapid communication, close owner-employee interaction, and shorter feedback loops. The resulting paradox is that SMEs may have less capacity for formal learning infrastructure but greater potential for informal, situated learning.

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The most effective learning architecture may therefore combine a small formal core—targeted training and external expertise—with high-frequency informal learning through coaching, experimentation, and peer exchange. This pattern is consistent with the broader literature’s emphasis on incremental digitalization and continuous learning. The review by Sagala and Ōri (2024) highlights continuous education and learning, while Asadullah and Faik (2026) show how digital platform resources can enable capability development through learning mechanisms inside retail SMEs. The common point is that learning is enacted through use, interaction, and adaptation rather than simply through technology acquisition.

## Digital platforms as learning infrastructures

Digital platforms can function simultaneously as technologies and as external learning infrastructures. Platform dashboards, tutorials, customer feedback, analytics, and seller communities provide information that SMEs can use to refine how they configure value and deliver it. Asadullah and Faik (2026) find that platform-provided resources can contribute to organizational capabilities through learning mechanisms in Southeast Asian retail SMEs. This perspective broadens the meaning of “digital capability” by treating ecosystems as sources of capability formation rather than merely as channels through which SMEs transact. However, dependence on external platforms can also narrow organizational learning if firms simply follow platform rules without developing transferable knowledge. For this reason, SMEs should distinguish between platform-specific operational competence and broader digital capability that can be redeployed across technologies and markets. Absorptive capacity is again the bridge: the firm must extract generalizable principles from specific digital experiences.

## Emerging-market relevance

The evidence base is still uneven across regions, but recent research from Indonesia and China strengthens the relevance of learning mechanisms in emerging-market SMEs. Afrianty et al. (2026) show sequential links among social capital, knowledge acquisition, digital literacy, and digital transformation in Indonesian small businesses. Zheng et al. (2026) show that organizational learning and digitalization capability are intertwined in Chinese SMEs, with environmental conditions altering some relationships. These studies support a contextual view in which learning mechanisms are shaped by networks, market complexity, competition, and the availability of intermediaries.

For emerging economies, this means that capability-building policies should not focus exclusively on subsidizing technology purchases. Policy instruments can also strengthen learning intermediaries, peer networks, practical training, digital extension services, mentoring, and university-industry linkages. The objective is to reduce the cost of knowledge acquisition and improve SMEs’ ability to assimilate and apply what they encounter.

## PRACTICAL IMPLICATIONS

For SME owners and managers, the literature supports a learning-centered digitalization strategy. A practical sequence is to identify capability gaps, select a bounded business problem, build the minimum necessary human capital, provide immediate opportunities for practice, capture lessons, and then scale what works. Training should therefore be linked to workflows and measurable business problems. Managers should also protect small amounts of time for experimentation and post-implementation reflection. For policymakers and SME support agencies, capability-building programs should integrate technology support with human capital development. Grants or vouchers for software are more likely to create durable capability when paired with mentoring, implementation assistance, peer learning, and follow-up coaching. Networks of trainers, consultants, universities, industry associations, and digital platforms can act as knowledge-brokering infrastructures. This aligns with the literature showing that external actors can facilitate knowledge exploration, exploitation, and technology transfer for SMEs. For training providers, the findings imply a shift from generic digital skills curricula toward context-specific capability-building programs. Course design should include hands-on implementation, reflection, peer discussion, and follow-up measurement. Certification alone is a weak proxy for capability; evidence of successful application provides a stronger indicator.

## RESEARCH GAPS AND FUTURE AGENDA

First, more longitudinal research is needed. Cross-sectional studies can show associations between learning and digital capability, but capability development is cumulative and recursive. Panel designs could test whether training

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leads to improved routines, whether routines improve absorptive capacity, and whether digital capability generates new learning opportunities over time.

Second, future research should separate individual, team, and organizational mechanisms. Much SME research aggregates skills and organizational capability into a single construct. A multi-level design could identify when individual expertise remains personal, when it diffuses to colleagues, and when it becomes embedded in routines.

Third, comparative work should investigate different external learning channels. Customers, suppliers, platforms, consultants, universities, and peer networks likely differ in speed, relevance, cost, and transferability. Research should examine which combinations are most effective under different levels of digital maturity and environmental uncertainty.

Fourth, emerging-market research requires greater attention to institutional and ecosystem conditions. Digital capability is influenced not only by internal learning but also by infrastructure, market access, digital-payment ecosystems, public support, and the quality of intermediaries. Finally, future studies should evaluate the unintended effects of digital capability building, including employee workload, dependency on specific platforms, and knowledge concentration in a few key employees.

## LIMITATIONS

The principal limitation of this review concerns bibliographic reproducibility. The synthesis is based on a structured search of academic publisher and research-index sources rather than on a direct export from subscription databases. Consequently, the article does not report fabricated counts of identified, screened, or excluded records. Second, the literature is methodologically heterogeneous, so the review emphasizes conceptual convergence rather than statistical effect-size estimation. Third, digital capability terminology remains inconsistent across studies, ranging from digital literacy and ICT adoption to advanced analytics and broader transformation capabilities. These differences require caution when comparing findings across contexts.

## CONCLUSION

This systematic literature review positions learning mechanisms at the center of human capital-driven digital capability building in SMEs. The evidence indicates that digital capability develops through a sequence of conversion processes: human capital provides knowledge and skill; learning mechanisms create opportunities to acquire, practice, share, and reflect on knowledge; absorptive capacity enables the SME to transform external inputs into firm-specific knowledge; and dynamic capabilities convert that knowledge into digital infrastructure, processes, analytics, innovation, and strategic renewal. Formal training remains important, but its effectiveness depends on experiential learning, social learning, external knowledge acquisition, organizational memory, and repeated reconfiguration.

The central theoretical implication is that human capital should not be treated as a static stock of digital skills. Its value emerges through organizational learning processes that transform individual competence into collective and renewable capability. For SMEs, this is especially consequential because resource constraints make learning efficiency, external networks, and knowledge retention critical. The review therefore advances a simple but consequential proposition: sustainable digital transformation in SMEs is fundamentally a learning process supported by people, relationships, routines, and repeated adaptation rather than a one-time technology adoption event.

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