

REVIEW

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Digital Business Model Innovation in SMEs: A Systematic Review of Value Creation, Resource Constraints, and Market Scalability

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Abstract

Digital technologies are reshaping how small and medium-sized enterprises design, deliver, and capture value. Yet SMEs do not experience digital transformation in the same way as large firms because they often operate with narrower financial margins, limited managerial bandwidth, weaker digital infrastructures, and fewer specialised capabilities. This systematic review examines the literature on digital business model innovation in SMEs from. It focuses on three interrelated themes: value creation mechanisms, resource constraints and capability barriers, and market scalability pathways. The findings show that SME digital business model innovation is not a single phenomenon but a family of related changes involving digital channels, platforms, data-driven services, digitalised customer interfaces, digitally enabled operations, and ecosystem participation. Across the literature, value creation is most often linked to efficiency gains, enhanced customer access, improved responsiveness, digital service augmentation, and new market reach. The review concludes that the field remains fragmented and insufficiently cumulative. More integrated research is needed to explain how SMEs convert limited resources into digital capabilities, how these capabilities reshape business models, and under what conditions digital business model innovation supports scalable and sustainable growth.

Keywords Digital business model innovation, SMEs, Value creation, Resource constraints, Market scalability, Systematic review

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Introduction

Digital transformation has become a central strategic issue for SMEs because digital technologies increasingly shape how firms communicate with customers, organise operations, access markets, and develop new value propositions. The entrepreneurship literature has emphasised that digital technologies alter the conditions of opportunity creation and venture development, while business model research shows that digitalisation can reshape value creation, delivery, and capture logics [1, 2]. For SMEs, this transformation is especially consequential because digital tools can lower market-entry barriers, but they can also expose firms to capability gaps and

competitive pressures that exceed their existing resource base [3, 4].

Digital business model innovation refers to the creation, adaptation, or reconfiguration of a firm's business model through digital technologies, including platforms, cloud systems, data analytics, e-commerce interfaces, and digitally mediated customer relationships. Prior studies suggest that digitalisation influences business model innovation by changing the architecture of transactions, the structure of customer interaction, and the mechanisms through which firms capture value from services, data, and networks [5, 6]. In SMEs, this process is rarely a simple technology adoption exercise; rather, it involves managerial

interpretation, organisational redesign, capability development, and strategic alignment between digital tools and commercial objectives [7, 8].

The SME context requires specific analytical attention because smaller firms often pursue digital business model innovation under resource scarcity. Studies of SME digital transformation show that limited financial resources, weak digital skills, insufficient technological infrastructure, and dependence on external partners can shape both the pace and direction of digital innovation [9, 10]. At the same time, SMEs may benefit from agility, proximity to customers, and entrepreneurial flexibility, which can help them experiment with digital channels, platform participation, and new service configurations [11, 12].

This review therefore asks three guiding questions. First, how do digital business models create value in SMEs? Second, what resource constraints and capability barriers impede digital business model innovation? Third, how do SMEs use digital business models to achieve market scalability, growth, and cross-boundary expansion? These questions respond to calls for clearer conceptualisation of digital business model innovation and stronger integration between business model theory, SME capability research, and digital transformation scholarship [13–15].

Review Method and Selection Criteria

The review followed a systematic synthesis logic appropriate for a conceptual and evidence-mapping review of peer-reviewed literature. The search focused on publications from 2017 to 2024 because this period captures the consolidation of digital entrepreneurship theory, the acceleration of SME digitalisation, and the expansion of platform-based and data-enabled business models [1, 3, 13]. The review prioritised journal articles that addressed digital business model innovation, digital transformation, digital capabilities, SME growth, platform participation, or digitally enabled value creation in small and medium-sized firms.

Search strings combined terms related to digital business model innovation, SMEs, value creation, resource constraints, scalability, digital transformation, dynamic capabilities, platforms, internationalisation, and systematic review methodology. The search logic was designed to include both direct studies of SME digital business model

innovation and adjacent studies that illuminate core mechanisms, such as digital capabilities, platform-enabled internationalisation, and business model performance effects [10, 16, 17]. Articles were retained when they contributed substantively to at least one of the review’s three analytical themes.

The inclusion criteria required each study to be a peer-reviewed journal article published between 2017 and 2024, written in English, and relevant to digital business model innovation or closely related SME digital transformation processes. Conceptual, empirical, and structured review articles were included because the field remains theoretically fragmented and requires synthesis across different methodological traditions [2, 13, 14]. Exclusion criteria removed books, theses, reports, websites, policy documents, conference papers, non-peer-reviewed outputs, and studies focused exclusively on large firms without meaningful implications for SMEs.

The screening process moved from keyword retrieval to title and abstract screening, full-text eligibility assessment, thematic coding, and final synthesis. Quality appraisal considered relevance to the review questions, clarity of theoretical framing, methodological transparency, and contribution to understanding value creation, constraints, capabilities, or scalability in SME digital business model innovation [14, 15]. Table 1 summarises the search strategy, inclusion and exclusion criteria, and the final sample of studies.

Table 1. Systematic Review Search Strategy and Study Selection Criteria: Databases, Keywords, Screening, and Final Sample

Review component	Operational approach	Inclusion logic	Contribut synthe
Time window	2017–2024	Articles published within the defined review period	Captures digital entrepreneurship SME digitalisation platform-based growth res
Publication type	Peer-reviewed journal articles only	Empirical, conceptual, and structured	Ensure scholarly while allo conceptua

		review articles	methodological divers
Core search terms	Digital business model innovation, SME, digital transformation, value creation, resource constraints, scalability, dynamic capabilities, platforms	Studies had to address at least one core theme directly or indirectly	Builds coverage across value creation, business model innovation, and growth pathways
Target literature domains	Digital entrepreneurship, SME management, innovation strategy, business model innovation, information systems, internationalisation	Articles relevant to SMEs and digital business model change	Integrates fragmented research streams
Screening stages	Title and abstract screening followed by full-text eligibility assessment	Excluded large-firm-only, non-digital, non-business-model, and non-peer-reviewed work	Improved relevance and coherence of final corpus
Quality appraisal	Assessment of conceptual clarity, methodological transparency, and relevance to review questions	Retained studies with clear analytical contribution	Supported system thematic synthesis
Final sample	33 peer-reviewed journal articles	All selected studies published between 2017 and 2024	Forms evidence base for the systematic review

Digital Business Model Innovation in SMEs

The reviewed literature shows that digital business model innovation in SMEs is broader than digitising existing processes. It includes changes in value proposition, customer interface, revenue architecture, operational configuration, and ecosystem positioning enabled by digital technologies [3, 6]. This distinction is important because an SME may adopt digital tools without meaningfully changing its business model, whereas digital business model innovation requires a reconfiguration of how the firm creates, delivers, and captures value [2, 18].

Several studies frame digital business model innovation as an adaptive process shaped by firm capabilities and environmental conditions. For example, research on SMEs during crisis conditions shows that digital transformation pathways often emerge through rapid reconfiguration of customer channels, delivery systems, and operational routines [8, 11]. Other studies emphasise that digital business model innovation is supported by organisational culture, technological capability, and dynamic capability development, suggesting that business model change depends on more than technology access alone [19, 20].

The reviewed studies indicate five recurring forms of SME digital business model innovation: digital channel extension, platform-mediated market access, digitally enhanced service models, data-enabled value creation, and digitally supported operational reconfiguration. Platform-enabled internationalisation studies show that SMEs can enter distant markets through digital intermediaries, while business model performance studies suggest that the payoff from digitalisation depends on fit between digital investment and organisational capability [16, 21, 22]. **Table 2** classifies the types of digital business model innovations observed in the SME literature.

Table 2. Typology of Digital Business Model Innovations in SMEs: Forms, Definitions, and Illustrative Examples from the Literature

Type of digital business model innovation	Definition	Typical SME manifestation	Illustrative literature

Digital channel extension	Use of digital interfaces to reach, serve, or transact with customers	E-commerce, online ordering, digital marketing, remote customer support	Digitalisation of SME performance, crisis-driven transformation
Platform-mediated market access	Use of third-party or proprietary platforms to connect with customers, suppliers, or international markets	Marketplace participation, platform export channels, app-based service access	SME internationalisation and digital platform growth
Digitally enhanced service model	Addition of digital services to existing products or customer relationships	Online consultation, digital after-sales service, subscription support	Business innovation, customer extension
Data-enabled value creation	Use of data analytics or digital information flows to improve decisions, offerings, or customer targeting	Customer analytics, demand forecasting, personalised services	Digital capabilities and value creation
Digitally supported operational reconfiguration	Redesign of internal processes through digital tools	Cloud systems, workflow automation, digitally coordinated supply chains	Efficiency, and capabilities development

Figure 1 presents an integrative typology of digital business model innovation in SMEs, showing how digital technologies reconfigure value propositions, customer interfaces, operations, data use, and ecosystem participation.

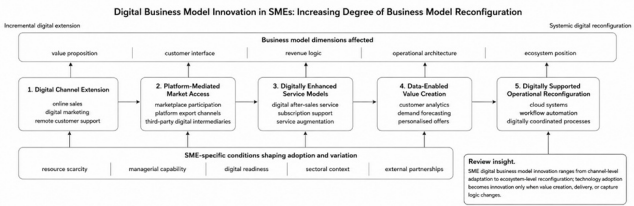


Figure 1. Integrative Typology of Digital Business Model Innovation in SMEs: From Digital Channel Extension to Ecosystem-Based Business Model Reconfiguration

The typology also shows that SME digital business model innovation varies by sector, technological intensity, international exposure, and organisational readiness. High-growth and technology-oriented SMEs often emphasise platform scalability and data-enabled services, whereas traditional SMEs more commonly begin with digital channel extension or operational digitalisation [23, 24]. This variation cautions against treating digital business model innovation as a uniform trajectory and supports a more context-sensitive synthesis of value creation, constraints, and scalability [25, 26].

Value Creation Mechanisms

Digital business model innovation creates value for SMEs by changing both the efficiency of internal operations and the quality of external market interaction. Studies of digitalisation and SME performance show that value is often produced through faster information flows, reduced transaction costs, improved customer access, and more responsive coordination across business activities [3, 21]. This evidence suggests that value creation is not limited to revenue growth; it also includes organisational learning, operational flexibility, and stronger market sensing.

A second mechanism concerns customer-facing value creation, where SMEs use digital channels to improve convenience, personalisation, service responsiveness, and post-purchase interaction. Digital entrepreneurship research shows that digital technologies can reshape opportunity formation by allowing smaller firms to test, refine, and scale offerings through digitally mediated customer feedback [1]. In SME contexts, these mechanisms are particularly important because digital interfaces can compensate for limited physical reach and help firms compete through relationship intensity rather than scale alone [7, 24].

A third mechanism is data-enabled value creation, where SMEs use customer, transaction, or operational data to improve decision-making and value propositions. Studies on digital capabilities indicate that firm performance improves when digital resources are converted into technological and organisational capabilities rather than treated as isolated IT investments [19, 27]. **Table 3** synthesises the value creation mechanisms reported in digital business model innovation studies.

Table 3. Value Creation Mechanisms in Digital Business Model Innovation for SMEs: Pathways, Outcomes, and Mediating Factors

Value creation mechanism	Main pathway	SME-level outcome	Customer outcome
Operational efficiency	Digitalisation of workflows, communication, and coordination	Lower costs, faster processes, improved resource use	Faster service delivery, fewer transaction frictions
Customer access and engagement	Digital channels, e-commerce, social media, and online service interfaces	Wider reach and improved customer retention	Greater conversion, responsiveness, and interaction
Data-driven decision-making	Use of analytics, customer data, and digital feedback loops	Better targeting, forecasting, and business model adaptation	More relevant offers, personalisation, experience
Service augmentation	Addition of digital services to products or existing offerings	New revenue streams and stronger differentiation	Enhanced value and improved purchasing support
Ecosystem participation	Engagement with platforms, partners, and	Access to external resources, markets, and	Expanded choice, reliability

	digital intermediaries	complementary assets	network beneficiaries
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The reviewed evidence also indicates that value creation is mediated by organisational agility and business model fit. Agile business model innovation helps SMEs experiment with digital propositions, but successful value capture depends on whether the digital model aligns with customer needs, operational capabilities, and revenue logic [7, 28]. This is why some SMEs achieve measurable gains from digitalisation while others adopt similar tools without producing substantial performance improvements [21, 29].

Resource Constraints and Capability Barriers

Resource constraints are central to understanding digital business model innovation in SMEs because smaller firms frequently lack the capital, specialised personnel, and technological infrastructure required for sustained digital transformation. Studies of ICT adoption and SME digitalisation show that financial limitations, weak technical knowledge, and inadequate digital infrastructure can delay or narrow the scope of digital business model change [4, 9]. These limitations are not merely operational obstacles; they shape which business model options appear feasible to SME owners and managers.

Capability barriers are equally important because digital business model innovation requires more than purchasing digital tools. Dynamic capabilities, digital skills, absorptive capacity, and managerial cognition influence whether SMEs can sense digital opportunities, seize them through new business model configurations, and reconfigure existing routines [14, 18]. The literature therefore moves beyond a simple resource-deficit view and shows that SMEs need organisational capabilities that translate scarce resources into coherent digital value propositions [11, 30].

External support mechanisms can help SMEs overcome internal constraints. Digital innovation hubs, platform providers, technology partners, consultants, and ecosystem intermediaries can supply knowledge, infrastructure, legitimacy, and market access that SMEs cannot build independently [9, 22]. **Table 4** catalogues the resource constraints and capability barriers hindering digital business model innovation in SMEs.

Table 4. Resource Constraints and Capability Barriers for Digital Business Model Innovation in SMEs: Internal

Limitations and External Challenges

Constraint or barrier	Description	Effect on digital business model innovation	Possible mitigation mechanisms
Financial limitation	Restricted funds for technology investment, experimentation, and scaling	Limits adoption of advanced systems and slows business model reconfiguration	Phase investment, public support, partner platform
Human capital gap	Shortage of digital skills, analytics knowledge, and transformation expertise	Weakens implementation quality and strategic use of digital tools	Training, hiring, external advice, digital innovation hubs
Technological infrastructure weakness	Limited systems integration, outdated tools, or inadequate data architecture	Prevents data-driven services and scalable digital processes	Cloud adoption, modular systems, technology partner
Managerial capability barrier	Limited strategic understanding of digital business model change	Produces tool adoption without business model innovation	Leadership development, peer learning, strategic planning
Organisational culture barrier	Resistance to change, low experimentation, or weak digital orientation	Reduces agility and inhibits business model renewal	Digital culture building, small-pilot learning, routine
Ecosystem dependency	Dependence on platforms, partners, or intermediaries	Creates access benefits but may reduce autonomy and bargaining power	Multi-channel strategy, governance, awareness, capability upgrade

The evidence also shows that constraints can sometimes stimulate creative adaptation. SMEs may use bricolage, incremental experimentation, platform affiliation, or external collaboration to pursue digital business model innovation despite limited resources [10, 12]. However, this adaptive capacity should not be romanticised, because persistent capability shortages can produce fragile digital models that are difficult to sustain or scale [31, 32].

Market Scalability and Growth Pathways

Market scalability is one of the strongest promises of digital business model innovation for SMEs because digital channels and platforms can reduce the dependence on physical proximity. Studies of online SMEs and digital platform internationalisation show that smaller firms can reach foreign customers, test new markets, and coordinate cross-border transactions through platform infrastructures [16, 17]. This creates opportunities for growth that would be difficult through traditional export or branch-based expansion models.

Platform-based scaling is a prominent pathway because platforms provide visibility, transaction architecture, customer access, and trust mechanisms. SMEs can use established digital platforms to access international markets, but this pathway also creates dependency on platform rules, algorithms, fees, and competitive visibility [22]. The literature therefore presents platform participation as both a scalability enabler and a strategic vulnerability that requires careful business model governance [15].

Digital scalability also occurs through direct-to-customer channels, digitally enhanced services, subscription models, and service extensions that can be replicated across markets. Research on digital transformation and business model innovation suggests that scalable growth depends on the alignment between digital infrastructure, organisational readiness, and the firm’s capacity to adapt its value proposition to different customer contexts [26, 28]. Table 5 maps market scalability strategies and growth pathways for SME digital business models.

Table 5. Market Scalability and Growth Pathways in SME Digital Business Model Innovation: Strategies, Enablers, and Performance Outcomes

Scalability pathway	Growth logic	Key enablers	Potential performance outcome
Platform-based scaling	Use of digital marketplaces or platforms to access wider markets	Platform infrastructure, trust systems, customer traffic	Rapid market entry and international reach
Direct-to-customer digital channels	Online sales and service interfaces reduce geographic constraints	E-commerce capability, digital marketing, logistics integration	Wider reach, stronger customer data, higher responsiveness
Digital servitisation	Digital services extend or complement existing offerings	Service design, customer data, technical support capability	Recurring revenue and differentiation
Data-enabled targeting	Analytics improves customer segmentation and market prioritisation	Data collection, analytical capability, CRM systems	More efficient growth and improved conversion
Ecosystem-based expansion	Partnerships and digital intermediaries support scaling	Network access, complementary assets, collaboration routines	Faster expansion via reduced internal investment

The scalability literature suggests that digital business model innovation enables growth only when digital reach is supported by operational capacity. SMEs may generate demand through digital channels but fail to scale if logistics, customer service, data systems, or managerial routines cannot absorb growth pressures [21, 29]. This makes scalability a capability-dependent outcome rather than an automatic effect of digital technology adoption [27, 33].

Synthesis of Research Gaps

A first gap concerns conceptual fragmentation. The literature uses overlapping terms such as digital transformation, digitalisation, digital entrepreneurship,

business model innovation, and platform-based growth, often without clearly separating technology adoption from business model reconfiguration [6, 13, 15]. This weakens cumulative knowledge because studies may appear to address the same phenomenon while actually examining different levels of change.

A second gap concerns limited longitudinal evidence. Many studies identify associations between digitalisation, capabilities, and performance, but fewer trace how SMEs move from initial digital adoption to sustained business model innovation over time [3, 21, 28]. Longitudinal research is needed to explain whether digital business model innovation follows staged development, crisis-triggered adaptation, iterative experimentation, or discontinuous transformation [8, 11].

A third gap concerns sectoral and contextual imbalance. The literature often gives greater attention to technology-oriented, export-oriented, or digitally visible SMEs, while traditional sectors, micro-enterprises, low-resource environments, and informal economy firms receive less systematic attention [10, 14, 32]. This limits understanding of how digital business model innovation varies across institutional conditions, market structures, infrastructure quality, and managerial capability levels.

A fourth gap concerns the underdeveloped analysis of failure, unintended consequences, and limits to scalability. Several studies highlight performance gains, platform access, and digital capability benefits, but fewer examine cases where digital business model innovation fails, increases dependency, overstretches resources, or creates weak value capture [22, 25]. The field therefore needs a more balanced synthesis that connects value creation, resource constraints, and scalability risks within the same analytical frame [12, 31].

Future Research Directions

Future research should develop multi-level theory that connects individual entrepreneurs, firm-level capabilities, and ecosystem conditions. Digital entrepreneurship theory highlights the role of digital technologies in opportunity creation, while dynamic capability theory explains how firms sense, seize, and reconfigure resources in changing environments [1, 18]. Combining these perspectives can clarify how SME owners and managers convert digital

opportunity recognition into viable business model innovation.

Comparative studies across sectors, countries, and institutional environments are also needed. Current evidence suggests that digital business model innovation differs between traditional and technology-intensive SMEs, between domestic and internationalising firms, and between resource-rich and resource-constrained contexts [16, 23, 29]. Cross-country and cross-sector designs would help identify which mechanisms are generalisable and which are contingent on market infrastructure, regulatory conditions, or ecosystem maturity.

Future studies should adopt more process-oriented research designs. Instead of measuring digitalisation as a static condition, researchers should examine how SMEs experiment, learn, abandon, revise, and scale digital business models over time [7, 8]. Such work would be particularly valuable for explaining how early digital adoption becomes strategic renewal rather than isolated operational improvement [24, 26].

Finally, future research should examine under-represented SMEs, including micro-enterprises, low-tech firms, family businesses, and firms operating in informal or infrastructure-constrained environments. Studies on adoption determinants, digital innovation, and SME transformation show that barriers are not evenly distributed, and this inequality may shape who benefits from digital business model innovation [4, 14, 31]. A stronger research agenda should therefore integrate methodological diversity, including qualitative process studies, comparative case designs, configurational analysis, and longitudinal mixed-method research [30, 32].

Conclusion

This systematic review synthesised evidence on digital business model innovation in SMEs across value creation, resource constraints, capability barriers, and market

scalability. It showed that digital business model innovation is not reducible to technology adoption, but involves the reconfiguration of value propositions, customer interfaces, operational routines, revenue mechanisms, and ecosystem relationships.

The review's main contribution is an integrated interpretation of three research streams that are often treated separately. Value creation mechanisms explain why digital business model innovation matters, resource and capability barriers explain why it is difficult, and scalability pathways explain how SME digital models may support growth across markets.

The findings imply that theory, policy, and practice should approach SME digital business model innovation as a context-sensitive and capability-dependent process. SMEs require not only access to technologies but also managerial capabilities, ecosystem support, strategic alignment, and realistic pathways for sustainable scaling.

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