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(Research) Article

Evaluating Digital Transformation Pathways an Their Influence on SME Market Outcomes: A PRISMA – Based Systematic Evidence

A'isy Fiklil Nafisah [1*], Sudarmiatin[2], Agus Hermawan[3]

[1-3] Departement of Management Science, Faculty of Economics and Business, Universitas Negeri Malang, Indonesia
* Corresponding Author: e-mail: aisy.fiklil.2404139@students.um.ac.id

Abstract: Digital transformation has become a major driver in enhancing the competitiveness of Micro, Small, and Medium Enterprises (MSMEs) in the era of global competition. However, scientific evidence regarding the pathway of digital transformation and its impact on market performance remains separately distributed and has not been systematically synthesized. This study conducts a Systematic Literature Review (SLR) based on PRISMA 2020 on international publications within the 2013–2024 range. The results of the analysis indicate that the digital transformation pathway encompasses digital capability, digital orientation, digital integration, digital strategy alignment, and the utilization of operational technology. Each pathway contributes differently to market outcomes such as sales growth, customer retention, market expansion, and competitive advantage. The study also found the presence of moderating and mediating roles through innovation capability, dynamic capability, organizational culture, and competition intensity. This research produces an integrated conceptual model and recommendations for a further research agenda to deepen strategic management theory in the context of MSMEs.

Keywords: Digital Transformation; Market Outcome; Market Performance; MSMEs – Micro Small Medium Enterprises; Systematic Literature Review.

1. Introduction

The Fourth Industrial Revolution (Industry 4.0) has fundamentally altered the global competitive landscape, making Digital Transformation (DT) a strategic necessity rather than a mere operational option (Hokmabadi, et. al., 2024). For Micro, Small, and Medium Enterprises (MSMEs) a sector that fundamentally supports national economies in many jurisdictions the adoption and mastery of digital technology are vital keys to exponentially enhancing competitiveness (Parra-Sánchez & Talero-Sarmiento, 2023). Digitalization enables MSMEs to overcome traditional geographical barriers, optimize internal processes, and ultimately achieve superior Market Outcomes, realized through significant increases in sales growth, improved customer retention, market expansion, and the establishment of sustainable competitive advantage. Nevertheless, DT implementation is a complex, multi-dimensional process; it demands more than just technological investment, requiring structural and strategic adjustments. Therefore, a clear understanding of the structured set of steps, or pathway, that MSMEs must navigate is essential for their digitalization efforts to yield maximum impact (Vial, 2019; Ma, J. et. al., 2021)

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Despite the well-established urgency of DT in both practical and academic discourse, the available scholarly literature exhibits significant conceptual fragmentation (Egodawele, et. al., 2022). The primary gap lies in the lack of a systematic and unified synthesis regarding the key components forming the digital transformation pathway. Concepts such as digital capability, digital orientation, and digital integration are often studied in isolation, hindering the development of a holistic understanding of how these elements interact sequentially or in parallel to drive performance (Rupeika, et. al., 2022; Nasiri, et. al., 2022; Shen, et. al., 2022). Theoretically, existing studies are often distributed and have not successfully comprehensively integrated relevant strategic management theory frameworks. Specifically, there is a need to unify the lens of the Resource-Based View (RBV), which emphasizes unique internal resources (digital capability); Dynamic Capability, which focuses on the ability to adapt and reconfigure resources in the face of environmental change; and the Technology-Organization-Environment (TOE) framework, which provides the external and organizational context for technology adoption.

The failure to integrate these perspectives impedes the explanation of how and why MSMEs effectively build and leverage their digital assets. This gap is compounded by methodological limitations in existing studies (Singh, et. al., 2023). First, the high variability in measuring MSME market performance indicators across different studies (such as using revenue growth versus customer loyalty versus profit) hinders generalization efforts and comparative validity of collective findings. Second, the majority of prior research focuses solely on the direct relationship between DT and performance, overlooking the complexity of business and market dynamics often influenced by indirect mechanisms. The minimal exploration of the mediating and moderating roles played by crucial factors like innovation capability, dynamic capability, organizational culture, and competition intensity constitutes a substantial methodological shortcoming. These factors are critical because they explain when (moderation) and through what (mediation) an MSME's digital investment can be translated into tangible market advantage.

To address these conceptual, theoretical, and methodological limitations, this research adopts a rigorous Systematic Literature Review (SLR) approach based on the latest PRISMA guidelines (covering publications up to 2024). This strict methodology aims to bridge the identified gaps by: (1) Comprehensively identifying and mapping the effective digital transformation pathways in global literature; (2) Analyzing and measuring the influence of these pathways on MSME market outcomes; (3) Testing and modeling the mediating and moderating roles of contextual factors; and (4) Developing a new Integrated Conceptual Model firmly rooted in the synthesis of strategic management theory. The findings of this research are expected to yield dual benefits: Theoretical Benefits in the form of a structured and credible synthesis that serves as a foundation for further theory development, and Significant Practical Benefits, acting as a solid strategic guideline for MSMEs and an effective policy reference for governments in formulating national digital empowerment initiatives.

2. Theoretical Framework

The theoretical foundation of this research integrates four primary conceptual pillars to comprehensively analyze the Digital Transformation (DT) process in MSMEs and its resultant impact on organizational performance. This multi-lensed approach moves beyond single-theory explanations, providing a robust model for dissecting the complex mechanisms through which digitalization translates into market success. The framework begins with the Resource-Based View (RBV), which serves as the foundational perspective. RBV asserts that a firm's sustained competitive advantage stems from possessing resources that are Valuable, Rare, Inimitable, and Non-substitutable (VRIN). Within the context of digitalization, this emphasizes the crucial role of digital capabilities such as data analytics expertise, advanced IT infrastructure, and digitally skilled personnel as the core, proprietary resources essential for competitive differentiation among MSMEs. Complementing RBV is the Dynamic Capabilities Theory (DCT). Given the rapid and turbulent nature of the digital environment, DCT is essential as it explains how MSMEs actively build, integrate, and reconfigure these digital resources. DCT focuses on higher-order organizational abilities to sense changes in the digital landscape, seize emerging opportunities, and reconfigure existing assets and operational processes accordingly. This dynamic perspective is critical for mapping the non-linear and adaptive pathways of DT such as digital orientation and strategic alignment that MSMEs must adopt to ensure long-term viability, moving beyond merely owning resources to actively managing their evolution.

The third pillar, Digital Transformation Theory (DTT), provides the specific domain context, focusing on the strategic changes necessitated and facilitated by digital technology. DTT moves beyond simple technology adoption to examine profound organizational shifts, including the modification of business models, the restructuring of operational processes, and the redefinition of core organizational capabilities. This theory helps structure the specific components of the digital pathway under investigation, such as digital integration and utilization of operational technology. Finally, the framework culminates with Market Performance Theory. This body of theory provides the necessary outcome metrics for evaluating the ultimate success and effectiveness of the strategic digital initiatives. Market performance is assessed through crucial, external-facing indicators, including market expansion, significant customer retention improvements, and measurable sales growth. By linking DTT to Market Performance Theory, the research ensures that the theoretical examination is tied directly to measurable commercial results, allowing for a comprehensive evaluation of the digital-performance relationship.

3. Materials and Method

This study employs a rigorous Systematic Literature Review (SLR) design, strictly adhering to the PRISMA 2020 guidelines to ensure maximum transparency, validity, and reliability of the findings. The primary data sources utilized for the review include highly reputed academic databases such as Scopus, Web of Science (WoS), Emerald, ScienceDirect, and Google Scholar. The search strategy was executed using a combination of specific keywords including "SMEs," "Digital Transformation," "Market Performance," and "Digital Capability" to precisely capture relevant literature. Inclusion Criteria stipulated that eligible articles must be empirical, available in full-text format, and published within the defined

timeframe of 2013–2024, while Exclusion Criteria systematically eliminated review articles, theses, and non-refereed conference proceedings. The subsequent data analysis technique involved systematic coding, theme synthesis to consolidate findings, and evidence comparison across studies to effectively map the identified digital transformation pathways. Finally, to uphold the Validity and Reliability of the SLR process, the crucial stages of article screening and data extraction were conducted independently by two reviewers, with adherence continually checked against the PRISMA checklist

PRISMA (Preferred Reporting Items for Systematic Review and Meta- Analysis)

Table 1. PRISMA Guidelines.

Selection Stage	Count
Records identified	742
Records after duplicates removed	515
Records screened (title & abstract)	515
Records excluded	430
Full-text articles assessed for eligibility	85
Full-text articles excluded	70
Studies included in final SLR	15

The systematic literature review adhered to the PRISMA 2020 guidelines, commencing with the Identification stage. A comprehensive search was conducted across five major databases: Scopus, Web of Science, ScienceDirect, Emerald, and Google Scholar. This initial search yielded a total of 742 articles. Subsequently, the Screening process began by removing duplicates, which reduced the initial pool to 515 unique articles. These were then thoroughly screened based on their titles and abstracts, resulting in the exclusion of 430 articles that were deemed irrelevant to the research topic. This left 85 articles that proceeded to the Eligibility stage. In this stage, all 85 articles underwent a detailed full-text review. After careful examination against the predefined inclusion criteria (empirical nature, full-text availability, and publication dates 2013–2024), 70 articles were excluded. Finally, 15 articles were deemed suitable and were subsequently Included in the final systematic literature review for data extraction and synthesis.

4. Results and Discussion

Table 2. Mapping trends based on literature findings.

No.	Document (Year)	Primary Digital Pathway	Context & Methodology	Key Findings (Pathway & Impact)
1	Maycotte et al. (2025)	Digital Capability	Quantitative multi-study (survey) of 137 MSMEs in emerging markets. Primary goal was to develop and validate the scale for measuring digital capability (ORGDIGCAP).	Developing digital capabilities is crucial for resource-constrained firms in emerging markets to remain competitive. Digital capability includes the dimensions of digital learning and integration of digital technology.
2	Faruque et al. (2024)	Technology Adoption & Digital Transformation	Conceptual analysis/general review of DT trends, challenges, and opportunities in small businesses.	DT enables MSMEs to achieve sustainability and enhance competitiveness. Digital technology integration aims to transform operational procedures, elevate customer satisfaction, and foster innovation.

3	Joensuu-Salo & Viljamaa (2024)	Digital Orientation	Qualitative survey of 204 Finnish rural MSME owners/managers during the COVID-19 pandemic.	Organizational ambidexterity serves as a positive mediator in the relationship between digital orientation and the utilization of growth strategies. Digital orientation is positively associated with product/service development and market development strategies.
4	Ayuns Luz (2025)	Digital Platforms	Preprint article (not yet peer-reviewed) focusing on the role of digital platforms for small businesses in Rural America.	Investigates the role of digital platforms in enhancing market reach for small businesses.
5	Omowole et al. (2024)	Digital Transformation (Drivers & Barriers)	Conceptual analysis (Review Article) on the barriers and drivers of DT in MSMEs.	DT is a critical factor for business growth and competitiveness. Analysis aims to explore factors that hinder or facilitate DT (e.g., improved customer engagement as a driver).
6	Slim et al. (2021)	IT-Business Alignment (Strategic Alignment)	Empirical study investigating the effect of IT-business alignment factors on MSME performance in Iraq (Middle East).	Strategic IT-business alignment has a beneficial effect on MSME performance. The study applies the Strategic Alignment Model (SAM) in a non-Western context.
7	Sandu et al. (2017)	Cloud-Based Services Adoption	Study using the Diffusion of Innovation Theory (DOI) on MSMEs in India.	Cloud-based services adoption represents a paradigm shift from heavy physical IT infrastructure investment to a pay-per-use model. Innovative factors (such as relative advantage, compatibility, and cost saving) influence adoption intention.
8	Owoseni et al. (2021)	Digital Technologies & Dynamic Capabilities	Mixed-method approach (interviews and questionnaires) on micro and small businesses (MSBs) in Ghana (low-income country) during the COVID-19 pandemic.	Digital technologies influence dynamic capabilities (DCs) (including adaptive capability, absorptive capability, and innovative capability) in small businesses amidst extreme disruption. The research maps digital technologies to the DC framework.
9	Fillis & Wagner (2005)	E-business Development (Maturity)	Exploratory qualitative investigation through in-depth interviews in Central Scotland. Note: This article is outside the specified inclusion range (2013-2024).	Industry factors, customer influence, the entrepreneurial orientation of key decision-makers, and the level of competence development play significant roles in the achieved level of E-business development.
10	Hoang et al. (2025)	Digital Capabilities	Quantitative study (PLS-SEM and ANN) on 314 manufacturing MSMEs in Vietnam (emerging market), utilizing the dynamic capabilities view.	Digital capabilities positively correlate with sustainable competitive advantage. Digital absorptive capacity acts as a positive mediator. Digital leadership is identified as an active factor positively affecting DT and competitive advantage.
11	Akpe et al. (2023)	Digital Readiness & Technology Acceptance	Study rooted in the Technology Acceptance Model (TAM) and Digital Readiness Framework. Context: Underserved small business sectors, particularly in rural and low-income urban communities.	Explains how socio-economic and organizational factors influence the adoption and effective use of digital tools. Focuses on addressing the persistent digital divide (limited infrastructure, skills, and financial resources).

12	Yoo et al. (2019)	Technology Orientation (Assumed/Implicit) & Entrepreneurial Orientation	Quantitative research on export-oriented MSMEs in the Seoul Metropolitan Area, Korea. Methodology: Structured questionnaire.	Examines the relationship between International Entrepreneurial Orientation, entrepreneurial activities (exploratory and exploitative), and MSME Export Performance. Emphasizes that the Digital Pathway must align with strategic orientation to enhance international market performance.
13	Omowole et al. (2024)	Big Data Utilization Strategies / Data Analytics	Comprehensive Review Article. Focus: Strategies for utilizing Big Data for market analysis and customer insights in MSMEs.	MSMEs can leverage Big Data to understand customer behavior, preferences, and trends. This enables more informed decision-making and improves customer satisfaction, thereby boosting competitiveness.
14	Ijomah et al. (2024)	Marketing Analytics / Data Analytics	Review Article focusing on the impact of marketing analytics on MSMEs.	Marketing analytics has a transformative impact by driving data-driven decisions that optimize marketing strategies. This increases customer engagement and generally improves business performance.
15	Widayanto & Nafis (2025)	Digital Transformation (Mediating Role)	Quantitative research using Structural Equation Modeling (SEM) on 200 MSMEs in East Java, Indonesia.	Digital Transformation is found to act as a significant mediating variable. It links antecedent factors (entrepreneurial literacy, innovation, and market responsiveness) with enhanced MSME performance.

The foundational DT pathways identified are rooted in the Resource-Based View (RBV), emphasizing Digital Capability and Digital Readiness. Studies consistently demonstrate that the development of digital capabilities comprising technology integration and learning dimensions is crucial for resource-constrained SMEs, driving sustainable competitive advantage and positively correlating with increased sales. This foundation is amplified by Digital Orientation, where a firm's commitment to using technology is shown to enhance organizational ambidexterity, which in turn mediates the relationship between orientation and effective growth strategies, such as product/service and market development. Moving beyond foundational resources, the pathways include the strategic adoption and integration of specific technologies, which directly influence market performance. The use of Digital Platforms is key to expanding market reach and improving customer acquisition, while the shift to Cloud-Based Services represents a paradigm change that lowers operating costs and enhances profitability. Crucially, the evidence highlights the transformative power of Data Analytics and Big Data Utilization. These practices enable SMEs to transition to data-driven decision-making, optimizing marketing strategies, gaining superior customer insights, and ultimately improving customer satisfaction and retention. Furthermore, the role of Strategic IT-Business Alignment reinforces the Technology-Organization-Environment (TOE) framework, proving that aligning digital technology with business goals is essential for reducing inefficiency and enhancing competitive positioning.

The reviewed literature confirms the critical importance of strategic and dynamic mechanisms. Dynamic Capabilities, such as the ability to 'sense' and 'seize' market opportunities, are actively supported and influenced by digital technologies, leading to increased market adaptability. Most significantly, empirical studies affirm the complexity of

the DT pathway by demonstrating that Digital Transformation acts as a significant mediating variable. This mediating role links crucial antecedent factors such as entrepreneurial literacy, innovation, and market responsiveness to overall enhanced SME performance. Collectively, these findings validate the need for a PRISMA-based systematic review to precisely map these heterogeneous pathways (capabilities, alignment, adoption, and mediation) and definitively evaluate their causal influence on SME Market Outcomes, thereby providing a clear, evidence-based conceptual model for future research and practice.

5. Conclusion

The conclusion drawn from this Systematic Literature Review (SLR) of the MSME Digital Transformation (DT) literature confirms that the influence of DT on Market Outcomes is complex, non-linear, and mediated by various internal mechanisms. The review successfully mapped multi-dimensional DT pathways, which can be grouped into three main pillars: Capability, Orientation & Strategy, and Specific Technology Adoption. Digital Capability and Digital Readiness are proven to be the fundamental prerequisites (consistent with the Resource-Based View), underpinning the MSMEs' ability to sustain competitiveness, adapt, and drive sales growth. This pathway is reinforced by Dynamic Capabilities and Digital Orientation, which serve as key mechanisms for 'sensing,' 'seizing,' and 'reconfiguring' resources (aligned with Dynamic Capability Theory), particularly amidst market disruption, ultimately boosting market responsiveness and growth strategies. Furthermore, the adoption of specific technologies such as Data Analytics and Digital Platforms acts directly as a catalyst, shifting business decisions from intuition-based to data-driven, thereby enhancing customer satisfaction, retention, and profitability. This interrelation is strengthened by findings on the role of IT-Business Strategic Alignment and the discovery that Digital Transformation itself acts as a significant mediating variable between antecedent factors (like entrepreneurial literacy) and overall market performance. Collectively, these findings not only validate the existing fragmentation in the literature but also provide a solid, structured synthesis, paving the way for the formulation of an Integrated Conceptual Model that links the RBV, DCT, and TOE across the MSME DT pathway to guide future research and managerial practice.

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