

Enhancing Human Resource Capability and Marketing through Technology for Business Competitiveness: A Systematic Literature Review of Msmes in East Java

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ABSTRACT: This study conducts a Systematic Literature Review (SLR) of 41 peer-reviewed empirical articles to synthesize evidence on how human resource (HR) capability and marketing capability interact with technology to produce competitive advantage in Micro, Small, and Medium Enterprises (MSMEs). Conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses 2020 (PRISMA 2020) protocol, the review draws on Scopus-indexed articles published between 2017 and 2026, spanning 19 countries, with 87.8% of studies originating from developing economies. The synthesis is interpreted through an integrated Resource-Based Theory and Dynamic Capabilities framework. Three principal findings emerge. First, a complementarity thesis is substantiated: HR capability and marketing capability are mutually reinforcing resources whose combined configurations produce competitive outcomes exceeding what either resource achieves independently, with market orientation as the most consistently confirmed antecedent of competitive advantage. Second, technology is predominantly framed as an enabling resource in 87.8% of the included studies, yet three coexisting framings are identified: technology as an organizational resource, as an environmental moderator, and as a dynamic reconfiguration process, reflecting unresolved theoretical pluralism in the field. Third, despite Indonesia accounting for 34.1% of the corpus, East Java, as a provincial MSME ecosystem with 1.12 million enterprises, remains effectively absent from the synthesized literature, constituting a critical gap for future research. The review contributes a complementary thesis and a typology of technology framings as theoretical advances, with practical implications for integrated capability-building policy targeting East Java MSMEs.

KEYWORDS: Human Resource Capability; Marketing Capability; Technology Adoption; Competitive Advantage; MSMEs; East Java; Systematic Literature Review; PRISMA 2020

I. INTRODUCTION

A. Background and Problem Statement

Micro, Small, and Medium Enterprises (MSMEs) constitute the backbone of developing economies, serving as critical drivers of economic growth, employment generation, and poverty alleviation. In Indonesia, MSMEs represent approximately 64.2 million business units, contributing 60.51% of the national Gross Domestic Product (GDP) and absorbing approximately 96.92% of the total workforce, equivalent to over 117 million workers (Ministry of Cooperatives and SMEs, 2024). Within this national context, East Java (Jawa Timur) emerges as particularly significant, as it is home to approximately 1.12 million MSMEs that contribute 59.18% of the province's Gross Regional Domestic Product (GRDP) and employ roughly 95% of the local workforce (Antara, 2025; BPS, 2025).

Despite their numerical dominance and macroeconomic significance, Indonesian MSMEs, particularly those in East Java, continue to face persistent structural challenges in sustaining competitive advantage. These challenges encompass limited human resource (HR) capabilities, inadequate marketing practices, and constrained access to and adoption of technology (Emi et al., 2024; Oduro et al., 2023). Empirical evidence corroborates the severity of these challenges: Beqiri & Aziri (2021) demonstrate that modern HRM development practices are minimally implemented in micro and small enterprises, with fragmented and inconsistent application of lifelong learning, employee motivation, and performance training across organizational levels. Alexandro (2025), surveying Indonesian MSMEs and startups, confirms that digital HRM strategies significantly impact workforce productivity and organizational performance, yet most MSMEs face substantial barriers to transitioning to digitally enabled HR management. More than 50% of MSME owners have completed only primary-level education, thereby limiting their capacity for strategic planning, digital literacy, and resource optimization (Susanti et al., 2023). Meanwhile, fragmented digital marketing adoption and underdeveloped organizational marketing capabilities further constrain MSMEs' ability to reach broader markets and to respond

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effectively to competitive dynamics (Lu & Shaharudin, 2024). Soekiman (2024), in a study of 455 Indonesian MSMEs, finds that digital marketing capabilities significantly strengthen the HR strategy-performance relationship and that digital skills are essential for MSME competitiveness, yet systematic adoption of integrated HR and marketing capabilities remains limited in practice.

The convergence of Resource-Based Theory (RBT) and Dynamic Capabilities perspectives suggests that an organization's internal resources, particularly its human capital and marketing capabilities, are central determinants of sustainable competitive advantage (Barney, 1991; Teece et al., 1997). Technology plays an increasingly critical enabling role in this framework by serving as a catalyst that amplifies the productivity of HR capabilities and extends the reach of marketing functions. Uwizeyemungu et al. (2018), in a configurational analysis of Quebec manufacturing and service SMEs, demonstrate that IT and HRM capabilities are complementary resources whose combined configurations yield superior competitive performance, whereas either resource in isolation yields suboptimal outcomes (Noer et al., 2025). Similarly, Yuwono et al. (2025) find that ICT adoption significantly enhances marketing performance in Indonesian creative industry MSMEs, with distinctive competencies, namely technology skills and entrepreneurial mindset, fully mediating this relationship. However, the precise configuration of these relationships, specifically regarding how HR capability and marketing capability interact with technology to produce competitive advantage in MSME contexts, remains insufficiently theorized and empirically verified in an integrated manner.

B. Research Gap

A growing body of empirical literature has independently examined HR capability, digital marketing adoption, and technology integration as discrete drivers of MSME competitiveness (Ismiyanti et al., 2025; Susanti et al., 2023). However, three critical gaps persist in the literature. First, studies rarely integrate all three constructs, namely HR capability, marketing capability, and technology, within a unified analytical framework: Sungwa (2025) and Wang et al. (2025) examine strategic HRM in isolation from marketing dimensions, while Rambe (2017) and Olazo (2023) investigate social media marketing and marketing competency, respectively, without addressing HR capability or technology as co-determinants of competitive advantage, leaving the three-construct interaction unmeasured across the accumulated evidence. Second, the role of technology in the HR, marketing, and competitive advantage nexus remains conceptually inconsistent across studies, as technology is variously positioned as an independent driver of competitive advantage (Yuliza et al., 2026), a moderating condition on digital marketing capabilities (Liu et al., 2025), and an environmental turbulence factor that moderates the marketing-performance relationship (Rahmadi et al., 2026), yet no systematic synthesis has reconciled these divergent framings or clarified whether technology is a capability MSMEs wield, an environmental condition they navigate, or a transformation process that reconfigures them. Third, while the majority of recent studies originate from developing economies, including 87.8% of the present corpus spanning nineteen national contexts, these efforts remain geographically dispersed such that the provincial-scale dynamics of East Java as an integrated MSME ecosystem are effectively absent: Indonesia-focused studies in the corpus restrict their geographic scope to individual cities such as Surabaya (Wulandari et al., 2025) or single-residency samples (Rahmadi et al., 2026), and the only study explicitly targeting East Java micro-entrepreneurs (Wiguna et al., 2025) examined a subsample of 150 firms in two coordinating board regions rather than the full provincial MSME ecosystem. This study addresses these gaps through a Systematic Literature Review (SLR) that employs the PRISMA 2020 protocol and synthesizes 41 peer-reviewed empirical articles published between 2016 and 2026.

C. Research Objectives

This study aims to: (1) synthesize evidence on how HR capability and marketing capability collectively contribute to competitive advantage in MSMEs; (2) clarify the role of technology as a driver, mediator, or moderator in the capability and performance relationship; and (3) identify research gaps and propose future directions with particular attention to the developing economy context of East Java, Indonesia.

D. Research Questions

This study is guided by three research questions:

- RQ1:** How do human resource capability and marketing capability contribute to the competitive advantage of MSMEs based on synthesized empirical evidence?
- RQ2:** What role does technology play, specifically as an enabler, mediator, or moderator, in the relationship between organizational capabilities and competitive advantage in MSMEs?
- RQ3:** What are the contextual limitations and research gaps in existing literature, particularly regarding MSMEs in developing economies, and what future research directions are warranted?

E. Scope and Significance

This review is scoped to peer-reviewed empirical articles indexed in the Scopus database, encompassing studies that examine at least one of four focal constructs, namely HR capability, marketing capability, technology, and competitive advantage, in the context of MSMEs or similar business entities. The review spans publications from 2016 to 2026 across all geographic contexts, with analytical attention directed toward developing economy settings. The significance of this study is twofold. Theoretically, it

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contributes an integrated synthesis of fragmented constructs within a unified RBT and Dynamic Capabilities framework, thereby advancing cumulative knowledge on MSME competitiveness. In practical terms, its findings offer actionable insights for MSME practitioners, policymakers, and development agencies seeking evidence-based strategies to strengthen capabilities, with direct implications for the East Java context.

II. METHODOLOGY

A. Research Design

This study employs a Systematic Literature Review (SLR) design to synthesize empirical evidence on the interplay between human resource (HR) capability, marketing capability, technology, and competitive advantage in Micro, Small, and Medium Enterprises (MSMEs). An SLR was selected over a narrative review because it follows an explicit, reproducible, and auditable protocol that minimizes selection bias and enables transparent reporting of how conclusions are drawn from accumulated evidence (Noer et al., 2025). The review protocol was designed and reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses 2020 (PRISMA 2020) statement (Page et al., 2021), which provides a contemporary checklist and flow diagram to guide comprehensive identification, screening, eligibility assessment, and final inclusion of studies.

The theoretical lens underpinning the synthesis integrates Resource-Based Theory (RBT) and the Dynamic Capabilities perspective. Under RBT (Barney, 1991), competitive advantage is understood as a function of valuable, rare, inimitable, and non-substitutable internal resources, with HR capability and marketing capability representing two such strategic resource bundles. Dynamic Capabilities theory (Teece et al., 1997) extends this view by acknowledging that SMEs must continuously sense, seize, and reconfigure their resource base, a process in which technology serves as a critical enabling mechanism. This integrated framework guided both the selection of search constructs and the analytical categories applied during data extraction.

B. Search Eligibility Criteria

Eligibility criteria were defined a priori to maintain methodological transparency and ensure that only relevant, high-quality evidence was admitted to the corpus. The criteria are summarized in TABLE I.

TABLE 1. Eligibility Criteria for Article Inclusion and Exclusion

Criterion	Inclusion	Exclusion	Rationale
Database	Scopus (peer-reviewed index)	Non-indexed, grey literature, or preprints	Ensures academic credibility and citation traceability
Language	English only	Non-English publications	Ensures consistency of interpretation and comparability
Document Type	Journal articles (original research)	Book chapters, conference proceedings, review articles, editorials	Ensures primary empirical evidence is synthesized
Publication Period	2016 to 2026	Before 2016 or after 2026	Captures contemporary developments in the digital economy era
Full-Text Access	Downloadable full-text via Scopus	Full-text not accessible or restricted	Ensures completeness of data extraction
Thematic Focus	Studies addressing at least one focal construct: HR capability, marketing capability, technology, or competitive advantage in MSME or equivalent small business contexts	Studies focused exclusively on large corporations, macro-level policy, or constructs wholly unrelated to the four focal themes	Ensures direct relevance to the review's research questions

It should be noted that the formal Scopus search string included the parameter PUBYEAR < 2025, which was specified at the time of initial string construction. However, the actual Scopus export conducted on June 14, 2026, returned articles published through 2026 because Scopus had by that date indexed several early-access and online-first publications from 2025 and 2026 that had not yet been assigned final print publication years. In the interest of methodological transparency, these articles were retained in the corpus because they had been formally peer-reviewed, assigned DOIs, and indexed by Scopus prior to the export date. The effective publication window of the final corpus, therefore, spans 2017 to 2026.

C. Search Strategy

A systematic electronic search was conducted in the Scopus database on June 14, 2026. Scopus was selected as the sole database for its comprehensive coverage of peer-reviewed social science, management, and business journals, its advanced search syntax,

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and the exportability of full metadata for screening purposes. The following Boolean search string was applied to titles, abstracts, and author-specified keywords:

TITLE-ABS-KEY ("human resource capability" OR "HR capability" OR "human capital" OR "workforce capability" OR "employee capability") AND TITLE-ABS-KEY ("marketing" OR "digital marketing" OR "marketing capability" OR "marketing strategy") AND TITLE-ABS-KEY ("technology" OR "digital technology" OR "information technology" OR "technological innovation") AND TITLE-ABS-KEY ("competitive advantage" OR "business competitiveness" OR "firm performance" OR "business performance") AND PUBYEAR > 2015 AND PUBYEAR < 2025 AND DOCTYPE (ar) AND LANGUAGE (english)

The search string was constructed to capture studies in which all four focal constructs appeared concurrently in the title, abstract, or keywords. Boolean AND operators were used across constructs to ensure thematic intersection, while OR operators within each construct block accommodated conceptual synonymy. The use of Scopus's TITLE-ABS-KEY field ensured that only studies with demonstrated relevance to these constructs were retrieved. The string was reviewed and approved by the supervising faculty prior to formal execution.

D. Study Selection and PRISMA Flow

The study selection process adhered to the four-stage PRISMA 2020 protocol: identification, screening, eligibility assessment, and final inclusion. The complete flow of records through each stage is depicted in Figure 1. At the identification stage, the Scopus search returned 65 records. At the screening stage, records were first filtered by publication year to remove articles published before 2016, reducing the pool to 62 records. The corpus was then filtered by document type, retaining only original journal articles and excluding conference papers, review articles, and book chapters, which reduced the set to 46 records. A subsequent language filter and deduplication reduced the pool to 43 records. At the eligibility stage, full-text availability was assessed for all 43 records. Two articles could not be downloaded from Scopus due to institutional access restrictions. These two records were excluded due to inaccessible full text. The remaining 41 articles were included in the final corpus for data extraction and synthesis.

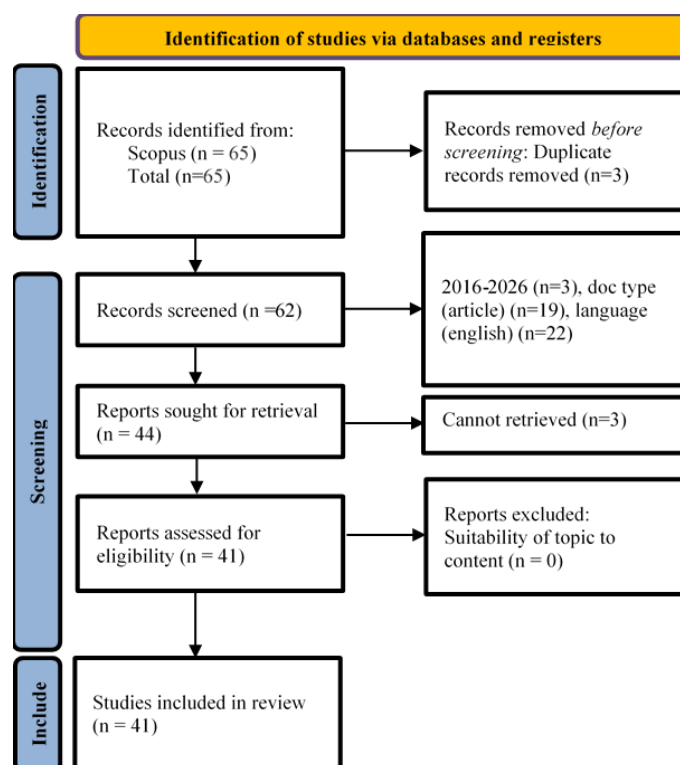


Figure 1. PRISMA Flowchart

E. Data Extraction

Data extraction was conducted systematically for all 41 included articles using a structured extraction matrix. Each article was read in full, and the following twelve fields were extracted: (1) article number, (2) author(s) and year, (3) country or geographic context, (4) research method, (5) HR capability variable operationalized, (6) marketing variable operationalized, (7) technology variable operationalized, (8) competitive advantage or performance variable operationalized, (9) key finding, (10) research gap as stated by

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the authors, and (11) mapping to one or more of the three research questions (RQ1, RQ2, RQ3). The complete extraction matrix is presented in Section III.B and is also available as a supplementary spreadsheet file.

Data extraction was performed by the lead researcher and verified by a co-author through cross-checking of a 20% random sub-sample (approximately 8 articles). Discrepancies in field coding were resolved through discussion and reference to the original text. Where an article addressed multiple focal constructs, it was coded for all relevant fields and assigned to more than one RQ as appropriate.

F. Quality Assessment and Limitations

Quality assessment in this review focused on methodological transparency, construct specificity, and contextual relevance rather than on formal risk-of-bias scoring instruments, which are more commonly applied in clinical SLRs than in management and social science reviews (Noer et al., 2025). Articles were assessed for three quality indicators: (1) whether the study clearly operationalized at least one focal construct, (2) whether findings were supported by primary empirical data or robust theoretical modeling, and (3) whether the study's context was sufficiently described to allow comparative analysis. All 41 articles satisfied these minimum quality thresholds, and no article was excluded on quality grounds alone.

Several limitations of the present review should be acknowledged. First, restricting the search to Scopus as the sole database may have excluded relevant articles indexed exclusively in other databases, such as Web of Science or Google Scholar. Second, the language restriction to English-only publications may have introduced a systematic gap in evidence from non-English-speaking MSME contexts. Third, the requirement for full-text downloadability resulted in the exclusion of two otherwise eligible articles. Fourth, the review synthesizes findings across heterogeneous contexts and methodologies, which limits the feasibility of quantitative meta-analytic aggregation; accordingly, the synthesis is primarily narrative and thematic.

III. RESULTS

A. Bibliometric Characteristics

The final corpus of 41 peer-reviewed articles was analyzed across four bibliometric dimensions: temporal distribution, geographic distribution, methodological orientation, and thematic alignment with the three research questions. Together, these characteristics provide the structural context within which the substantive synthesis in Section IV is grounded.

- 1) Temporal Distribution: The distribution of publications across years reveals a pronounced and accelerating concentration of research activity in the most recent period of the review window. As shown in TABLE II, only 7 articles (17.1% of the corpus) were published between 2017 and 2022, while the remaining 34 articles (82.9%) were published between 2023 and 2026. Within this latter period, 2025 and 2026 alone account for 27 articles, representing 65.9% of the entire corpus. This temporal clustering reflects the confluence of at least three forces: the widespread digital disruption, accelerated by the COVID-19 pandemic from 2020 onward; the emergence of artificial intelligence tools as commercially accessible MSME technologies from 2023 onward; and growing policy pressure on developing-economy governments to upgrade their MSME sectors in the post-pandemic recovery period.

Documents by year

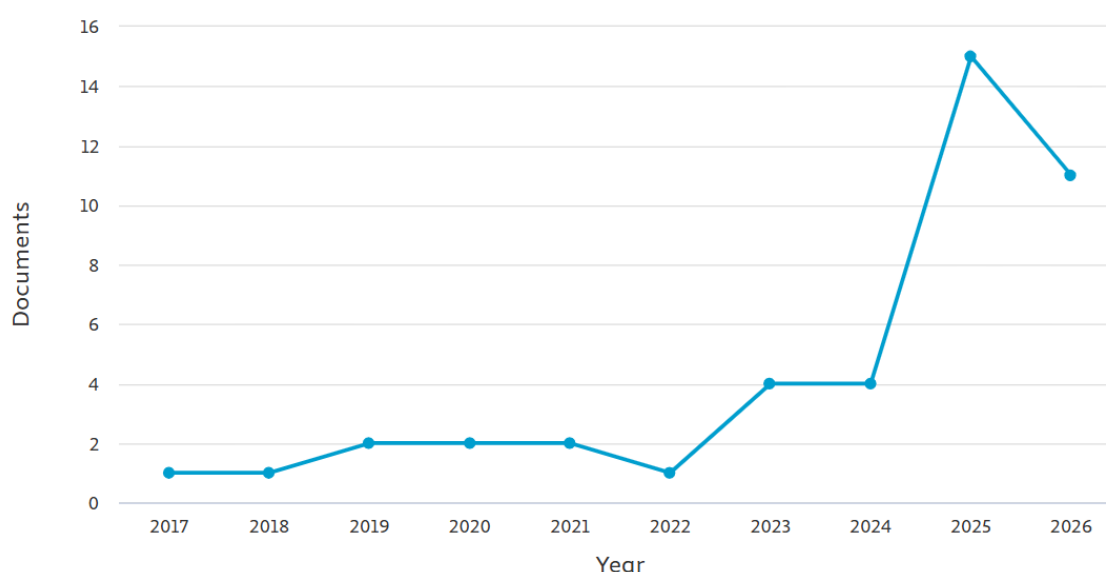


Figure II. Distribution of Included Articles by Publication Year (N = 41)

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- 2) Geographic Distribution: The corpus spans 19 distinct countries or geographic contexts, yet the distribution is markedly skewed toward the developing world. As shown in TABLE III, Indonesia alone contributed 14 articles (34.1% of the corpus), making it by far the most represented country in the review. When aggregated at the regional level, Southeast Asia accounts for 18 articles (43.9%), and East Asia contributes an additional five articles (12.2%), bringing the combined share of Asian contexts to 56.1% of the total corpus. In contrast, high-income OECD economies account for only five articles (12.2% of the corpus). This geographic distribution directly positions the corpus to address MSME competitiveness dynamics in resource-constrained environments analogous to those in East Java, Indonesia.

TABLE III. Geographic Distribution of Included Articles (N = 41)

Country / Context	No. of Articles	Percentage (%)
Indonesia	14	34.1
China	5	12.2
South Africa	3	7.3
Pakistan	2	4.9
Peru	2	4.9
Philippines	2	4.9
Canada	1	2.4
Ecuador	1	2.4
Egypt	1	2.4
France	1	2.4
Germany	1	2.4
India	1	2.4
Kosovo	1	2.4
Malaysia	1	2.4
Nigeria	1	2.4
Romania	1	2.4
Sweden	1	2.4
Thailand	1	2.4
USA	1	2.4
Total	41	100.0

- 3) Methodological Approaches: The corpus is dominated by quantitative research designs, which collectively account for approximately 75.6% of the included articles. As summarized in TABLE IV, PLS-SEM (Partial Least Squares Structural Equation Modeling) is the single most frequently employed technique, appearing in 11 articles (26.8%), followed by other quantitative approaches collectively appearing in 16 articles (39.0%). Qualitative designs, including in-depth interviews, case studies, and thematic analysis, account for nine articles (22.0%). Two articles (4.9%) adopted mixed-method designs, and one article employed fsQCA for configurational analysis. The dominance of PLS-SEM introduces limitations common to this methodological tradition, including common-method variance, reliance on single-informant data, and cross-sectional snapshot limitations.

TABLE IV. Distribution Of Included Articles by Research Method (N = 41)

Research Method	No. of Articles	Percentage (%)
Quantitative (survey / regression / descriptive)	16	39.0
PLS-SEM	11	26.8
Qualitative (case study / interview / thematic analysis)	9	22.0
SEM-AMOS	2	4.9
Mixed Method	2	4.9
fsQCA / Configurational Analysis	1	2.4
Total	41	100.0

- 4) Alignment With Research Questions: Each article was mapped to one or more of the three research questions based on the focal constructs and thematic emphasis of its findings. As illustrated in TABLE V, RQ2 (the role of technology) attracted the broadest coverage, with 32 articles (78.0%) contributing relevant evidence. RQ1 (HR capability and marketing capability contribution to competitive advantage) was addressed by 29 articles (70.7%), and RQ3 (contextual limitations and research gaps in developing economies) was covered by 26 articles (63.4%). The most common thematic combination across the corpus was the joint coverage of RQ1 and RQ2 (15 articles).

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TABLE V. Mapping Of Included Articles to Research Questions (N = 41)

RQ Coverage	No. of Articles	Percentage (%)
RQ1 and RQ2	15	36.6
RQ2 and RQ3	12	29.3
RQ1 and RQ3	9	22.0
RQ1, RQ2, and RQ3	5	12.2
Total	41	100.0

Note: RQ1 = HR capability and marketing capability contribution to competitive advantage (29 articles, 70.7%); RQ2 = Role of technology as enabler, mediator, or moderator (32 articles, 78.0%); RQ3 = Contextual limitations and research gaps in developing economies (26 articles, 63.4%).
B. Data Extraction Matrix

TABLE VI presents the condensed data extraction matrix summarizing the 41 included articles across five key dimensions: author(s) and year, country or geographic context, primary research method, key finding, and research question mapping.

TABLE VI. Data Extraction Matrix: Summary Of 41 Included Articles

No.	Author(s), Year	Country	Method	Key Finding	RQ
1	Nazir, Rizwan and Zhu (2025)	Pakistan	Qualitative (TOE)	COVID-19 and competitive pressure drove SMM adoption; barriers include regulatory gaps and senior management resistance	RQ2; RQ3
2	Kerrick and Cumberland (2026)	USA	Case Study	Technology micro-credentials function as HR capability investments and employability signals, strengthening small business competitiveness	RQ1; RQ3
3	Zong, Anwar, Khan, Asmi and Hussain (2025)	China	SEM	Big-data AI analytics affordances significantly drive digital marketing capabilities, affecting value-chain innovation and international market goals	RQ2; RQ3
4	Wolor, Rababah, Wong, Mukhibad and Nurkhin (2025)	Indonesia	PLS-SEM	Green HRM significantly drives Green Innovative Work Behavior, Green Competitive Advantage, and Environmental Performance in Indonesian MSMEs	RQ1; RQ3
5	Li, Fast-Berglund and Paulin (2019)	Sweden	Qualitative	Manufacturing SMEs are partially digitized but face challenges sharing production knowledge on shop-floors; few have implemented Industry 4.0 for this purpose	RQ2; RQ3
6	Liu, Chen and Bawack (2026)	China	PLS-SEM	Digital marketing capabilities (DMC) positively impact firm performance; digital leadership significantly moderates the DMC-performance relationship	RQ1; RQ2
7	Wang, Xu, Mao, Deng and Cao (2026)	China	Qualitative (Delphi)	DX in construction SMEs is driven by five dynamic capabilities: environmental sensing, strategic agility, resource mobilization, digital ecosystem building, and organizational learning	RQ2; RQ3
8	Wulandari, Diah and Asari (2025)	Indonesia	PLS-SEM	Market orientation significantly influences digital literacy and business performance; digital literacy does not mediate the market orientation-performance relationship	RQ1; RQ2
9	Espina-Romero et al. (2026)	Peru	Quantitative	Digital HRM and digital competencies are keys to sustainable digital transformation; over 70% of Lima SMEs report limited digital adoption progress	RQ1; RQ2; RQ3

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10	Moraga, Mendoza, Calica, Hilbero, Purificacion and Valera (2026)	Philippines	Quantitative	Technological capability and market orientation drive innovative capability, which in turn produces competitive advantage in food and beverage SMEs	RQ1; RQ2
11	Abdelghani, Al-Romeedy, Emam, Hussein, Zamil and Ahmed (2026)	Egypt	Quantitative	Agile marketing and branding act as catalysts for sustainable marketing performance in Egyptian tourism SMEs in the digital era	RQ1; RQ2
12	Sholihin, Sudarmatin, Soetjipto, Djatmika, Ayuanti, Selviasari and Arida (2026)	Indonesia	SEM	Market orientation, entrepreneurial orientation, and knowledge management enhance MSME performance; competitive advantage and social media mediate and amplify these effects	RQ1; RQ2; RQ3
13	Mardatillah, Angraini and Yuliani (2024)	Indonesia	Qualitative	AR marketing combined with unique cultural resources optimizes competitive advantage and improves marketing performance in the batik Malay industry	RQ2; RQ3
14	Rahmadi, Sudarmiatin, Soetjipto, Churiyah and Putra (2026)	Indonesia	PLS-SEM	Entrepreneurial orientation, market orientation, and CRM positively influence MSME performance mediated by competitive advantage; technology turbulence moderates this effect	RQ1; RQ2
15	Tindaon and Banurea (2026)	Indonesia	Quantitative	Bali MSMEs are early AI adopters (tourism-driven) while Garut MSMEs are laggards (agrarian); financial constraints and limited digital literacy are primary barriers	RQ2; RQ3
16	Kongrode, Aujirapongpan and Ru-Zhue (2023)	Thailand	Quantitative	Dynamic talent management capability positively impacts competitive performance; dynamic marketing capability fully mediates this relationship in startup firms	RQ1; RQ2
17	Dunes, El Bouhali and Baudier (2026)	France	PLS-SEM	Employee training and internal communication enhance social media marketing capabilities; internal branding mediates competitive performance in structured SME environments	RQ1; RQ2
18	Kwarteng-Amaniampong and Tait (2026)	South Africa	Quantitative	Synergistic integration of digital marketing and e-commerce supply chains amplifies customer experience and marketing performance in post-COVID MSMEs	RQ2; RQ3
19	Yuliza, Siwi, Djamin and Nawawi (2026)	Indonesia	SEM	Green HRM, innovative behavior, and digital transformation positively drive competitive advantage and innovative performance in South Sumatera MSMEs	RQ1; RQ2
20	Su, Zhang and Wu (2023)	China	Qualitative (case study)	Digital marketing strategy in SMEs evolves in stepped iterations (validation to cloning to foresight); market pressure and organizational readiness are twin drivers	RQ2; RQ3
21	Beqiri and Aziri (2021)	Kosovo	Quantitative	Modern HRM practices are minimally implemented in Kosovo micro and small enterprises; efficient HRM management significantly impacts organizational development and competitiveness	RQ1; RQ3
22	Ortigueira-Sanchez, Welsh and Stein (2022)	Peru	PLS-SEM	Government subsidies, human capital, and cooperation positively affect innovation types,	RQ1; RQ3

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				which in turn drive production and export performance in Peruvian SMEs	
23	Otache (2024)	Nigeria	Quantitative	Innovation capability and strategic flexibility positively affect SME performance; competitive advantage mediates both, and competitive intensity moderates innovation capability effects	RQ1; RQ2
24	Yance Carvajal, Garaicoa Fuentes, Cedeno Guillen, Rodriguez Bejarano and Morgan Medina (2025)	Ecuador	Mixed Method	AI adoption positively impacts process optimization in Ecuadorian SMEs; barriers include insufficient training and resistance to change	RQ2; RQ3
25	Stratone and Vatamanescu (2026)	Romania	PLS-SEM	Intellectual capital, especially human capital, substantially influences organizational agility and performance in post-COVID-19 Romanian SMEs	RQ1; RQ3
26	Olazo (2023)	Philippines	Mixed Method	Marketing competency significantly influences marketing innovation; marketing innovation drives sustainable competitive advantage in Philippine SMEs	RQ1; RQ3
27	Shamsudin and Abu Hassim (2020)	Malaysia	SEM-AMOS	Market orientation drives organizational innovation, which mediates and improves business performance in Malaysian manufacturing SMEs	RQ1; RQ2
28	Adjie, Dhewanto and Fachira (2025)	Indonesia	Qualitative	Indonesian creative SMEs orchestrate resources across three creative value chain stages: creation (human capital, IP), production (technology), distribution (digital platforms)	RQ1; RQ2; RQ3
29	Rambe (2017)	South Africa	Quantitative	Tourism SMMEs use social media to extend market share; SMM integration into competitive strategies is limited but positively associated with enhanced business visibility	RQ2; RQ3
30	Wang, Zhang and Zhao (2025)	China	Hierarchical Regression	SHRM drives organizational innovation via chain mediation (learning to resilience); environmental dynamism shows an inverted-U moderating effect	RQ1; RQ3
31	Soekiman (2024)	Indonesia	MRA	SHRM significantly influences business performance; digital marketing capabilities and activities moderate and amplify the SHRM-performance relationship in Indonesian MSMEs	RQ1; RQ2
32	Alexandro (2025)	Indonesia	Quantitative	Digital HRM strategies significantly impact workforce productivity and organizational performance; digital HRM is a strategic asset under RBV and Dynamic Capabilities frameworks	RQ1; RQ2; RQ3
33	Sungwa (2025)	South Africa	Quantitative	Commitment-based SHRM practices are positively correlated with SMME effectiveness; collaborative HRM practices outperform calculative ones in building organizational capability	RQ1; RQ3
34	Wiguna, Sularso, Suroso and Handriyono (2025)	Indonesia	Quantitative	Entrepreneurial orientation and market orientation influence technical marketing strategy and firm performance; technology skills enable better marketing decision-making among East Java micro-entrepreneurs	RQ1; RQ2
35	Ismiyanti, Prajanti, Utomo, Handoyo,	Indonesia	SEM	Technopreneurship enhances competitive advantage through digital marketing capability;	RQ1; RQ2

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	Banowati, Kusmaryono and Huda (2026)			innovation capability and digital marketing capability both mediate the technopreneurship-competitive advantage link	
36	Uwizeyemungu, Raymond, Poba-Nzaou and St-Pierre (2018)	Canada	fsQCA	IT capabilities and HRM capabilities are complementary; their combined configurations produce superior competitive performance in manufacturing and service SMEs	RQ1; RQ2
37	Yuwono, Novandari, Suroso and Setyanto (2025)	Indonesia	PLS-SEM	ICT adoption significantly impacts MSME marketing performance; distinctive competencies fully mediate the ICT adoption-marketing performance relationship	RQ1; RQ2
38	Adam, Ibrahim, Ikramuddin and Syahputra (2020)	Indonesia	SEM-AMOS	Digital marketing platforms significantly affect supply chain management efficiency, which drives customer satisfaction and loyalty in Indonesian creative industry SMEs	RQ2; RQ3
39	Mahesh and Rathnapriya (2025)	India	EFA/PCA	Five factors define SMM adoption in Kerala SMEs: Marketing Performance Enhancement, Cost Efficiency, Digital Readiness, Management Support, and Customer Engagement	RQ2; RQ3
40	Chugunova and Danilov (2023)	Germany	Quantitative	Most German companies have digitized core HR processes; digital HRM is associated with competitive advantage in talent acquisition; SMEs differ from large firms in digital HRM adoption scope	RQ1; RQ3
41	Shaikh, Sohu, Shaikh, Kherazi and Soomro (2025)	Pakistan	SEM	AI adoption integrated with Green HRM drives Green Employee Behavior, which promotes environmental sustainability in Pakistan manufacturing SMEs; organizational culture moderates	RQ1; RQ2; RQ3

Several patterns emerge from TABLE VI that are analytically significant for the subsequent discussion. First, HR capability is operationalized in highly fragmented ways across the corpus. The reviewed studies variously conceptualize this construct as Strategic HRM (SHRM), Green HRM, Digital HRM, human capital, intellectual capital, distinctive competencies, talent management capability, employee training and internal branding, and technopreneur-ship, among others. This conceptual heterogeneity limits cross-study comparability and calls for a more standardized operationalization framework in future research.

Second, the role of technology across the 41 articles is predominantly that of an enabling variable or independent driver rather than a mediator or moderator. In 36 of 41 articles (87.8%), technology appears as an antecedent capability, adoption decision, or environmental condition that enables or conditions performance outcomes. Only a small number of studies explicitly position technology as a mediating or moderating variable. This distributional asymmetry in the conceptual role of technology is examined in greater depth in Section IV.B.

Third, the marketing variable is similarly diverse in its operationalization, encompassing social media marketing, digital marketing capabilities, market orientation, marketing competency, marketing innovation, agile marketing, CRM, and augmented reality marketing (Zong et al., 2025). While these constructs share a family resemblance in their orientation toward customer-value creation and market positioning, they represent meaningfully distinct theoretical constructs with different measurement traditions. The implications of this diversity for synthesizing evidence on the relationship between marketing capability and competitive advantage are addressed in Section IV.A.

IV. DISCUSSION

The discussion synthesizes findings from 41 empirical studies to answer the three research questions guiding this review. Rather than restating the descriptive results presented in Section III, this section interprets patterns, tensions, and theoretical implications across the corpus, drawing connections back to the Resource-Based Theory (RBT) and Dynamic Capabilities framework established in Section II.

A. How Do HR Capability and Marketing Capability Contribute to MSME Competitive Advantage

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The synthesized evidence consistently affirms that HR capability is a significant determinant of competitive advantage in MSMEs, aligning with (Barney's (1991) assertion that human capital constitutes a valuable, rare, and inimitable resource. Across the 41 included studies, however, HR capability is operationalized along at least five distinct conceptual pathways: strategic HRM practices (Soekiman, 2024; Sungwa, 2025; Wang et al., 2025), Green HRM (Shaikh et al., 2025; Wolor et al., 2025; Yuliza et al., 2026), digital HRM strategies (Alexandro, 2025; Chugunova & Danilov, 2023; Espina-Romero et al., 2026), intellectual and human capital frameworks (Ortigueira-Sánchez et al., 2022; Otache, 2024; Stratone & Vatamanescu, 2024), and competency-based configurations (Kerrick & Cumberland, 2026; Yuwono et al., 2025). This conceptual plurality is not merely terminological: each pathway implies different intervention logics, measurement instruments, and organizational contexts, making cross-study accumulation difficult. Sungwa (2025) demonstrates that commitment-based SHRM practices outperform calculative approaches in building organizational effectiveness, while Wang et al. (2025) identify a chain-mediated pathway whereby SHRM fosters organizational learning, which in turn builds adaptive resilience as a route to innovation. Together, these studies confirm the HR-CA link but through divergent mechanisms, indicating that no unified measurement framework for HR capability in MSME contexts yet exists.

Marketing capability exhibits an analogous fragmentation, with studies operationalizing it as market orientation (Farid Shamsudin & Abu Hassim, 2020; Moraga et al., 2026; Rahmadi et al., 2026; Wulandari et al., 2025), digital marketing capability (Liu et al., 2025; Soekiman, 2024), social media marketing (Dunes et al., 2026; Mahesh & Rathnapriya, 2025; Rambe, 2017), marketing competency and innovation (Olazo, 2023), dynamic marketing capability (Kongrode et al., 2023), and agile marketing (Abdelghani et al., 2026). Within this diversity, market orientation emerges as the most consistently confirmed antecedent of competitive advantage, with corroborating evidence across Indonesia, Malaysia, and the Philippines. Kongrode et al. (2023) advance this finding by demonstrating that dynamic marketing capability fully mediates the talent management-competitive performance relationship in Thai startups, establishing marketing capability not merely as a complementary resource but as a necessary transmission mechanism through which HR capability produces competitive outcomes.

The most theoretically significant finding of this review with respect to RQ1 is the consistent evidence that combined HR and marketing capability configurations outperform either resource in isolation. Uwizeyemungu et al. (2018), employing fuzzy-set Qualitative Comparative Analysis across Quebec manufacturing and service SMEs, identify multiple equifinal configurations in which IT capabilities and HRM capabilities jointly and necessarily produce superior competitive performance, whereas neither resource alone is sufficient. Kongrode et al. (2023) demonstrate a comparable synergistic effect in startup firms, and Soekiman (2024) confirms it across 455 Indonesian MSMEs, showing that digital marketing capabilities both moderate and amplify the return to SHRM investment on business performance. These findings support a complementarity thesis within the Dynamic Capabilities framework (Teece et al., 1997): HR capability and marketing capability are mutually reinforcing resources whose combination produces configurations that are difficult for competitors to replicate, precisely because the value of each resource is contingent on the presence of the other.

An additional finding of theoretical relevance is that competitive advantage functions as a mediating mechanism within the capability-performance chain, rather than solely as a final outcome. Otache (2024), Rahmadi et al. (2026), and Sholihin et al. (2026) each operationalize competitive advantage as a mediator between organizational capabilities and business performance. This mediating role is consistent with Barney's (1991) argument that competitive advantage is the mechanism through which resource superiority is converted into performance differentials, and it suggests that future measurement frameworks should treat competitive advantage as a latent construct occupying an intermediate position in the capability-performance path model.

B. What Role Does Technology Play in the Capability-Performance Relationship

The most numerically dominant finding of this review is that technology is positioned as an enabling or driving resource in the overwhelming majority of included studies. Across 36 of 41 articles (87.8%), technology adoption is operationalized as an independent variable or primary driver of competitive advantage and firm performance, encompassing a wide spectrum of specific technologies: ICT adoption (Yuwono et al., 2025), digital transformation (Wang et al., 2025; Yuliza et al., 2026), artificial intelligence adoption (Carvajal et al., 2025; Najam Shaikh et al., 2025; Tindaon & Banurea, 2026), social media technologies (Adam et al., 2020; Mahesh & Rathnapriya, 2025; Rambe, 2017), and augmented reality (Mardatillah et al., 2024). The consistency of this enabling framing across 19 countries and multiple sectors suggests that technology functions as a near-universal amplifier of competitiveness for MSMEs in the digital economy, reinforcing Teece et al. (1997) contention that sensing and seizing technological opportunities constitute a core organizational dynamic capability.

A smaller but theoretically significant subset of studies positions technology as an environmental condition that moderates the strength of capability-performance relationships, rather than as a resource directly wielded by MSMEs. Rahmadi et al. (2026) demonstrate that technology turbulence significantly moderates the CRM-business performance relationship in culinary MSMEs of the Kediri Residency. Liu et al. (2025) operationalize digital leadership as a moderating variable conditioning the effectiveness of digital marketing capabilities on firm performance. Soekiman (2024) extends this moderating logic to the HR domain, demonstrating

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that digital marketing capabilities amplify the SHRM-performance relationship, effectively making access to technology a multiplier of HR strategy rather than a substitute for it.

A third framing, implicitly present in several studies, positions technology as a process by which organizational capability is reconfigured over time. Su et al. (2023), in a longitudinal embedded case study, trace the evolution of digital marketing strategy in SMEs through a stepped iteration from validation to cloning to foresight, framing technology adoption as a dynamic reconfiguration process rather than a discrete technology investment event. Adjie et al. (2025) similarly embed digital technology within the creation, production, and distribution stages of creative value chains in Indonesian SMEs, demonstrating that competitive performance is a function not of technology possession but of how technology is integrated into resource orchestration strategies. The coexistence of these three framings across the corpus reflects a deeper unresolved theoretical question about the ontological status of technology in the MSME context.

Notwithstanding the dominant positive evidence, the corpus also documents substantial barriers to technology adoption that attenuate its competitive returns. Tindaon & Banurea (2026), mapping AI adoption readiness across MSMEs in Bali and Garut, demonstrate that agrarian-context MSMEs in Garut are systematically classified as laggards due to financial constraints, limited digital literacy, and inadequate government support infrastructure. Beqiri & Aziri (2021) identify technology advancement as a principal challenge confronting micro and small enterprises, and Carvajal et al. (2025) document that resistance to change and lack of technical training are the primary barriers to AI adoption in Ecuadorian SMEs. These adoption-barrier findings establish that the enabling effect of technology on competitive advantage is contingent on prior investment in digital literacy and managerial capacity.

C. Contextual Limitations, Developing Economy Gaps, And Future Research Directions

The synthesized corpus comprises 41 studies across 19 countries, with 87.8% originating from developing economies. Indonesia is the most frequently represented country (14 studies; 34.1%), yet studies are spread across distinct national contexts, sectors, and analytical units, preventing the accumulation of insights into any single MSME ecosystem. The implication for East Java is direct: none of the 14 Indonesian studies examines East Java as a unified provincial analytical unit. Studies are restricted to individual cities such as Surabaya (Wulandari et al., 2025), residency-level contexts such as the Kediri Residency (Rahmadi et al., 2026), or combined provincial and city samples (Sholihin et al., 2026). The only study explicitly targeting East Java micro-entrepreneurs is limited to 150 firms in two coordinating board regions, leaving the full provincial ecosystem of 1.12 million MSMEs across diverse sectors effectively unexamined (Wiguna et al., 2025).

The methodological profile of the corpus raises additional concerns about the depth and generalizability of existing findings. Quantitative survey-based designs using PLS-SEM account for the majority of included studies, reflecting the field's prevailing preference for confirmatory hypothesis testing over exploratory or configurational inquiry. This concentration introduces a publication bias toward studies that confirm theorized relationships, potentially underrepresenting boundary conditions, negative results, and moderating contexts. Methodological outliers in the corpus yield distinctly richer insights: Wang et al. (2025), using a 3-wave longitudinal survey, capture the temporal chain from SHRM through organizational learning to resilience to innovation; Su et al. (2023), through longitudinal case study, trace the evolutionary logic of digital marketing strategy adoption; and Uwizeyemungu et al. (2018), through fsQCA, reveal equifinal configurations of IT and HRM capabilities that regression-based approaches suppress. Four future research directions emerge from this synthesis as the most directly actionable in light of the identified gaps. First, a provincial-scale integrated study of East Java as a unified MSME ecosystem is warranted, one that spans multiple sectors and employs a multi-construct measurement model that incorporates all four focal constructs. Second, longitudinal research designs are needed to establish the temporal sequencing of HR capability development, technology adoption, and marketing capability maturation. Third, configurational approaches such as fsQCA are positioned to answer which specific combinations of HR, marketing, and technology capabilities are necessary and sufficient for competitive advantage. Fourth, given the emerging concentration of studies on AI adoption in 2025 to 2026, research examining AI-augmented HR and marketing capabilities in Indonesian MSMEs represents a frontier of high practical relevance.

V. CONCLUSIONS

This study conducted a Systematic Literature Review of 41 peer-reviewed empirical articles indexed in Scopus, published between 2017 and 2026, to synthesize evidence on how HR capability and marketing capability interact with technology to produce competitive advantage in Micro, Small, and Medium Enterprises (MSMEs), with analytical attention directed toward the developing economy context of East Java, Indonesia. The review was conducted in accordance with the PRISMA 2020 protocol and interpreted through the integrated lens of Resource-Based Theory (Barney, 1991) and Dynamic Capabilities (Teece et al., 1997). Three research questions guided the synthesis, each yielding findings with distinct theoretical and practical implications.

With respect to RQ1, the corpus confirms that both HR capability and marketing capability are significant determinants of competitive advantage in MSMEs, yet neither is sufficient in isolation. HR capability is consistently confirmed across five conceptual pathways, including strategic HRM, Green HRM, digital HRM, intellectual capital, and competency-based

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configurations, each producing competitive advantage through different mechanisms. Marketing capability converges most consistently around market orientation as the single most robustly confirmed antecedent of competitive advantage across geographic contexts. The most theoretically important finding for RQ1 is the complementarity thesis: HR capability and marketing capability are mutually reinforcing resources whose combined configurations, as demonstrated by Kongrode et al. (2023), Soekiman (2024), and Uwizeyemungu et al. (2018), produce competitive outcomes that neither resource achieves independently. This finding extends (Barney's (1991) VRIN framework by establishing that inimitability in MSME contexts often arises not from any single resource but from the configuration of co-specialized capabilities. Additionally, competitive advantage is found to operate as a mediating mechanism rather than solely a terminal outcome in the capability-performance chain.

With respect to RQ2, technology is predominantly framed as an enabling or driving resource across 87.8% of the included studies, confirming that digital capability amplification is a near-universal pathway to MSME competitiveness in the contemporary economy. A smaller but theoretically significant subset of studies positions technology as a contextual moderator, such as technology turbulence (Rahmadi et al., 2026) or digital leadership (Liu et al., 2025), and a third set of studies frames technology as a dynamic reconfiguration process, as demonstrated in the digital marketing strategy evolution (Su et al., 2023). The coexistence of these three framings across the corpus is the most critical finding for RQ2: the field has not reached a theoretical consensus on what technology is in MSME contexts, and this unresolved question constitutes a fundamental gap in the theoretical architecture of MSME competitiveness research. Furthermore, the corpus documents systematic barriers to technology adoption in resource-constrained settings, establishing that the enabling effect of technology is contingent on prior investment in digital literacy and managerial capacity.

With respect to RQ3, the corpus spans 19 countries with 87.8% of studies originating from developing economies, confirming that the field has substantially broadened its empirical reach. Indonesia is the most heavily represented country at 34.1% of the corpus, yet the provincial-scale dynamics of East Java as an integrated MSME ecosystem remain effectively absent from the synthesized literature. Existing Indonesian studies are restricted to individual cities, single residency-level samples, or national-level surveys, with no study examining East Java as a unified provincial analytical unit across its 1.12 million MSMEs. The corpus also exhibits a methodological concentration on cross-sectional PLS-SEM designs, which limits the field's ability to capture temporal dynamics, configurational effects, and boundary conditions.

This review makes two primary theoretical contributions to the MSME competitiveness literature. First, it proposes and empirically substantiates a complementarity thesis within an integrated RBT and Dynamic Capabilities framework, establishing that the interactive configuration of HR capability and marketing capability produces competitive advantage through mechanisms that exceed the additive sum of each resource's individual contribution. Second, it maps for the first time the three competing theoretical framings of technology, namely technology as resource, technology as environmental condition, and technology as reconfiguration process, as a typology that exposes the unresolved conceptual pluralism in the field.

For MSME practitioners in East Java, the findings recommend investing in integrated HR and marketing capability bundles rather than isolated single-construct interventions. MSME training programs that simultaneously build digital HRM skills and a marketing orientation are likely to generate superior competitive returns. For policymakers and development agencies, the documented adoption barriers and regional disparities in digital readiness (Beqiri & Aziri, 2021; Tindaon & Banurea, 2026), underscore the need for a sequential capability development policy: foundational digital literacy programs should precede technology deployment initiatives, particularly in agrarian and rural MSME communities.

This review acknowledges several limitations. Restricting the search to Scopus as the sole database may have excluded relevant studies indexed in Web of Science or Google Scholar. The English-language restriction may have introduced systematic gaps in evidence from non-English-speaking MSME contexts. The heterogeneity of constructs, contexts, and methods across the 41 studies precluded quantitative meta-analysis, confining the synthesis to narrative and thematic aggregation. Future research should pursue a provincial-scale multi-construct longitudinal study of East Java MSMEs, employ configurational methods such as fsQCA to identify equifinal capability combinations, and examine the AI adoption frontier as it intersects with existing HR and marketing capability configurations in Indonesian MSME contexts.

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