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Digital Financial Literacy of MSMEs in Emerging Countries: A Systematic Literature Review and Future Research Agenda

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ABSTRACT

Digital Financial Literacy (DFL) has gained popularity in academic research over the past ten years, particularly as digital financial services have transformed the way individuals and businesses interact with the economic system. This paper presents a comprehensive systematic literature review (SLR) analysis of digital financial literacy studies in micro, small, and medium enterprises (MSMEs) in developing countries. The analysis uses VOSviewer to map the scholarly community, analyze the topic's evolution, and identify key contributors based on Scopus literature from 2016 to 2026. The number of articles decreased from 7,219 to a target collection of 26 articles using progressive classification. This study creates a conceptual framework for mapping digital financial literacy using the findings of the most cited studies. The result shows financial literacy, acceptance of fintech, digital financial inclusion, and financial risk behaviour are prevalent themes. The literature on digital financial literacy in the MSMEs area is still fragmented and under-theorized, despite the significant increase in academic contributions from emerging countries. In order to strengthen MSME financial resilience in the digital era, this review unifies scattered information and suggests a future research agenda that calls for context specific studies, comparative cross-country analysis, and more policy-oriented inquiry.

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INTRODUCTION

The global economic environment has recently changed drastically due to the convergence of digital technology and financial services. The ability to use digital financial tools is no longer a luxury but a survival skill for Micro, Small, and Medium Enterprises (MSMEs), which account for more than half of all global employment and approximately 90% of all businesses (Lusardi & Mitchell, 2014; Demirgüç-Kunt et al., 2018; Abdallah et al., 2025). However, access to formal financial education remains unequal in developing countries, where the majority of MSMEs worldwide operate, and digital commerce is undermining existing capabilities (Klapper et al., 2016; Sajid et al., 2024). Financial literacy, roughly defined as the attitudes, skills, and information necessary to make informed financial decisions, has long been studied as a factor influencing business performance and household well-being. However, this literacy now includes a unique digital component due to the rapid development of digital payment systems, peer-to-peer lending, mobile money platforms, and integrated fintech technologies. The ability to assess, accept, and handle digital financial products responsibly falls under digital financial literacy (DFL), which expands traditional financial competencies (Lusardi, 2019; Morgan & Long, 2020). Digital Financial Literacy (DFL) can assess whether MSME owners in places like Indonesia, Ghana, Vietnam, Kenya, and India are effectively managing their working capital, obtaining legitimate credit, or falling victim to dishonest online lending schemes.

Academic research on DFL among MSMEs in developing countries remains fragmented, despite growing policy interest embodied in G20 financial inclusion commitments and fintech plans across the Global South. Policymakers and practitioners are particularly lacking data from the Global South, as studies typically focus on individual consumers or developed country environments (Shi et al., 2025; Yang et al., 2023). This makes a comprehensive literature mapping both crucial and timely. This paper, by conducting a bibliometric analysis of Scopus-indexed publications from 2016 to 2026, fills this gap. Because it allows researchers to quantitatively map the structure of a knowledge domain, track its growth, identify influential authors and journals, and uncover thematic clusters without the subjectivity inherent in narrative reviews, bibliometric methods are well-suited for this purpose (Zupic & Čater, 2015; Donthu et al., 2021). This study methodically synthesizes the evolution and future directions of the DFL-MSME-developing country relationship using VOSviewer to visualize keyword co-occurrence and co-authorship networks. DFL, MSME, and developing/developed economies are the three main subjects of this study, which are structured based on four progressive search clusters ranging from a large body of financial literacy research (7,219 documents) to carefully delimited articles. To extract proven insights and emerging new limitations, each cluster is analyzed using author density maps, overlap timelines, and keyword networks.

The rapid proliferation of digital financial services in developing countries is fundamentally changing the operating environment for MSMEs, making digital financial literacy (DFL) an increasingly critical factor for business survival and success. Despite this growing practical urgency, the academic literature on DFL among MSMEs in developing countries is relatively fragmented and geographically limited, with existing studies focusing on a few countries and rarely incorporating the full complexity of the digital financial ecosystem that MSME owners face on a daily basis. This gap has serious real-world consequences: without a consolidated and systematically mapped evidence base, policymakers risk designing financial inclusion programs that are out of step with the actual digital literacy barriers faced by small business owners or insufficiently grounded in the contextual realities of emerging markets.

This study makes several significant contributions to the existing body of knowledge. First, it presents the first comprehensive bibliometric review of digital financial literacy

research specifically at the intersection of MSMEs and developing countries, bridging a structural gap that narrative observations and single-country empirical studies have failed to address. Second, by employing a four-cluster progressive search design that distills a broad scope of financial literacy comprising over 7,000 documents into a focused corpus of 26 context-relevant articles, the study provides a methodologically transparent and replicable conceptual framework for future researchers to adapt and apply as the literature grows. Third, the analysis of keyword co-occurrence and author collaboration networks conducted by VOSviewer provides a detailed, evidence-based overview of the thematic clusters, intellectual boundaries, and collaborative structures currently defining the field, yielding insights beyond what citation counts or publication counts alone can reveal. Fourth, the future research agenda outlined in this study translates bibliometric evidence into actionable scientific priorities, filling the gap between descriptive mapping and normative guidance for researchers, funders, and development organizations working at the intersection of digital finance, entrepreneurship, and inclusive economic development. Collectively, these contributions make this study a reference point for current scholarship and a practical guide for the next generation of DFL research on MSMEs in developing countries.

LITERATUR REVIEW

The Evolution of Financial Literacy Research

Behavioral finance and family economics are the foundation of academic studies on financial literacy. Financial literacy positively impacts retirement planning, asset growth, and debt management, according to groundbreaking research by Lusardi and Mitchell (2014). These findings have been borne out in the entrepreneurial context by subsequent research, which has shown that MSME owners with higher financial literacy have better cash flow management, are more likely to seek formal financing, and have higher long-term survival rates (Koskelainen et al., 2023; Kumar et al., 2023; Adomako et al., 2016; Dahmen & Rodríguez, 2014).

The traditional paradigm for financial literacy, operationalized through questions about inflation, compound interest, and portfolio diversification (Lusardi & Mitchell, 2014), has been criticized for its lack of relevance in the digital environment. The rapid growth of mobile financial services demands a reconsideration of literacy structures to incorporate digital channels, as suggested by Klapper et al. (2016). Due to these criticisms, DFL has become a unique concept that includes information on online credit evaluation, mobile banking interfaces, digital payment instruments, and cybersecurity threats (Morgan & Long, 2020; Setiawan et al., 2022).

Digital Financial Literacy and MSMEs

MSMEs face a paradoxical situation in emerging markets. On the one hand, because traditional banking systems fail to adequately serve them, they become a primary focus of financial inclusion programs. However, their owners often lack the digital literacy to utilize fintech solutions designed to bridge this gap (Klapper et al., 2016; Demirgüç-Kunt et al., 2018). According to research from Indonesia, one of the world's largest MSME economies, perceived trust and ease of use serve as mediating mechanisms, and perceived financial decision-making (DFL) strongly predicts fintech adoption among small merchants (Candraningrat et al., 2021).

Several theoretical frameworks have been used to explain DFL behavior among MSME owners (Lusardi & Messy, 2023; Mireku et al., 2023). Intention to use digital banking technology is captured by the Technology Acceptance Model (TAM). Decision-Based Financial Decision-Making (DFL) is positioned within the broader cognitive and social framework of financial decision-making, as defined by the Theory of Planned Behavior

(TPB). Resource-based theory links DFL to firm-level skills that generate competitive advantage. In developing countries where informal learning pathways are more common, social learning theory emphasizes the importance of peer networks and community-based financial education in developing DFL competencies (Choung et al., 2023).

METHODS

This study uses a systematic literature review technique with bibliometric analysis based on a modified PRISMA-inspired protocol for bibliometric research (Moher et al., 2009; Donthu et al., 2021). The sole data source was Scopus, chosen for its extensive coverage of peer-reviewed scholarly works, reliable indexing of business and economics publications, and interoperability with bibliometric tools. To maintain scientific rigor and site consistency, only papers presented as final-stage English-language publications in the source journals were retained. As a technique for mapping the intellectual architecture of research topics, bibliometric analysis is gaining popularity (Donthu et al., 2021). Bibliometric studies can analyze thousands of documents to discover structural patterns, such as prolific authors, core journals, citation networks, and thematic clusters, in contrast to systematic observation, which selects a small number of publications for in-depth qualitative synthesis (Zupic & Čater, 2015). Keyword co-occurrence networks, author collaboration graphs, and the temporal evolution of research themes can all be visualized using programs such as VOSviewer and Biblioshiny (R) (van Eck & Waltman, 2010). Fintech adoption (Rabbani et al., 2020), financial inclusion (Amidžić et al., 2014), and SME financing (Candraningrat et al., 2021) have all been the subject of previous bibliometric assessments in relevant disciplines. This work continues that legacy by focusing on the specific intersections between DFL, SMEs, and economic development that have been the subject of comprehensive bibliometric mapping.

Research Design

This study employed a Systematic Literature Review (SLR) following the PRISMA 2020 guidelines. The PRISMA 2020 framework was selected because it provides a transparent, reproducible, and rigorous procedure for identifying, screening, assessing eligibility, and selecting studies for evidence synthesis. This study employed a qualitative approach with bibliometric analysis. The review focused on Digital Financial Literacy (DFL) among Micro, Small, and Medium Enterprises (MSMEs) in emerging and developing countries. The analysis used VOSviewer to trace scholarly networks, analyze the evolution of themes, and identify key contributors based on Scopus-indexed literature produced between 2016 and 2026. Scopus was selected as the sole database because it provides extensive coverage of peer-reviewed journals in business, management, economics, entrepreneurship, and digital finance. The review protocol consisted of four stages: identification, screening, eligibility assessment, and inclusion. Two independent reviewers conducted article selection. Any disagreements were resolved through discussion until consensus was reached.

The articles were reduced from 7,219 documents to a final target collection of 26 articles using four progressive search clusters. The four sequential clusters were designed to demonstrate how knowledge grows or shrinks by increasing contextual detail. Cluster 1 outlines the general landscape of financial literacy; Cluster 2 focuses on the business sector; Cluster 3 covers the MSME dimension; and Cluster 4 bases the analysis on the situation in developing countries. Similar methods used in bibliometric observations of related topics are reflected in this funnel design (Rabbani et al., 2020; Donthu et al., 2021). Four nested clusters were used in the search approach, each of which gradually reduces the scope to suit the emphasis of this study:

Table 1. Search for Clusters and Document Counts

Cluster Analysis	**Keywords & Filters**	**Total N**	**Final N**
Cluster 1	"Financial literacy" OR "digital financial literacy" OR "fintech literacy" | Econ & Business | 2016–2026	1.729	790 (OA)
Cluster 2	Same + Subject: Business, Management & Accounting only	1.729	461 (OA)
Cluster 3	+ "MSME" OR "SME" OR "small business" OR "entrepreneur"	740	88 (OA)
Cluster 4	+ "emerging countries" OR "developing economies" OR "Global South"	64	26 (OA)

Note: OA = Open Access articles used for full-text verification

To ensure full-text accessibility, clarity, and reproducibility of the data screening and extraction process, only open access (OA) articles were included in this insight. Participating in an OA study allows for a thorough assessment of methodological quality and allows for independent verification of the observed results. Only fully peer-reviewed OA journal articles indexed in Scopus were considered to maintain the quality of the evidence.

Research Procedure

Scopus was used to export bibliographic metadata in CSV and BibTeX formats, including title, abstract, keywords, author names, affiliations, and citation counts. Two complementary tools were used: Biblioshiny (an R Shiny interface for the bibliometrics program) analysis for country-level productivity and contribution trends, and VOSviewer analysis for keyword co-occurrence and mapping of author collaboration networks. A full compression approach was used for the co-occurrence network, and network maps, overlays, and density maps were used to display the network. Node size in the VOSviewer network visualization aggregates with frequency of occurrence, while edge thickness scales with strength of co-occurrence. By color-coding nodes based on the average publication year of papers containing each keyword, from blue for older publications to green-yellow for more recent publications, the overlay representation adds a temporal dimension. Higher document density is indicated by warmer colors on the density map, indicating the relative concentration of scholarly work around a particular subject.

The following criteria articles were included: (a) published as late-stage articles (not preprints, conference papers, or book chapters); (b) published in a Scopus-indexed journal; (c) written in English; and (d) the title, abstract, or author keywords matched at least one of the target keyword combinations. Articles that addressed only developed country contexts without comparative examination of emerging markets, editorials, letters, or corrections, or were duplicated across clusters were not accepted. The 26 peer-reviewed publications that formed the analytical core of this study were generated from the Cluster 4 section with the business, management, and accounting topic categorization. This review adopted a Systematic Literature Review approach based on PRISMA 2020. The protocol followed the recommendations of the PRISMA Statement and PRISMA 2020 Explanation and Elaboration documents. The review aimed to synthesize empirical evidence concerning Digital Financial Literacy among MSMEs in emerging economies and to identify future research directions.

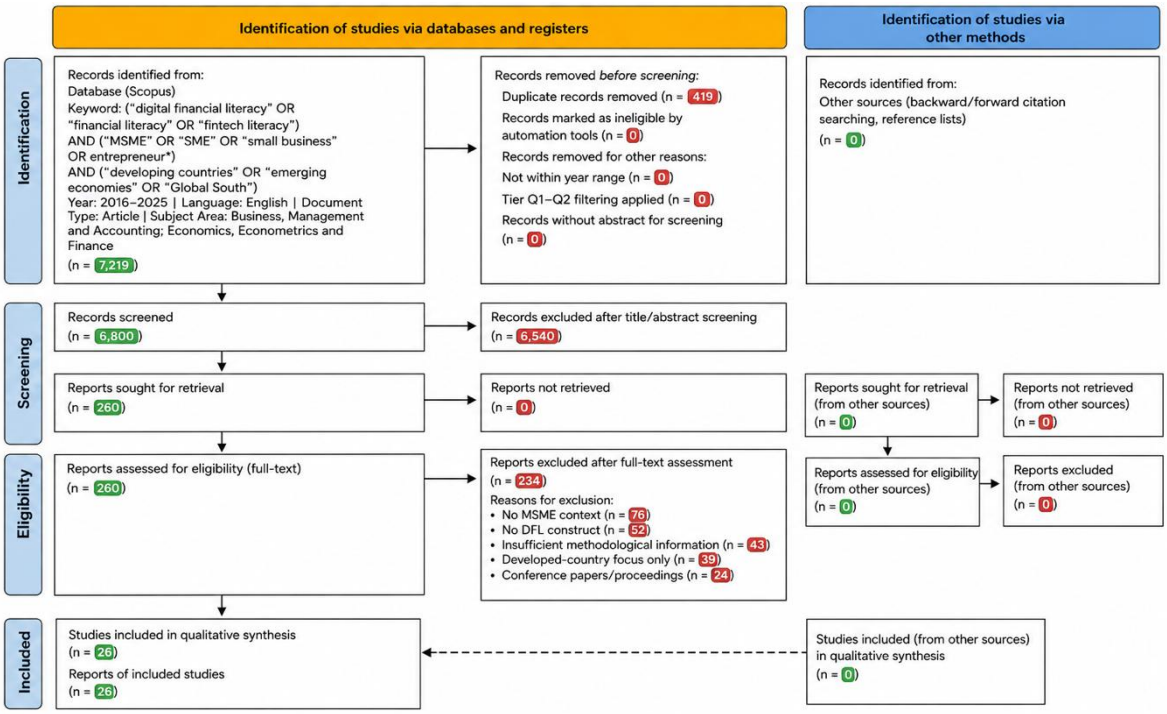


Figure 1. PRISMA 2020 Flow Diagram for the Systematic Literature Review of Digital Financial Literacy among MSMEs in Emerging Countries: Identification, Screening, Eligibility, and Inclusion Process (2016–2025)

Data Collection Techniques

Keyword Co-Occurrence Networks: Cluster 1 and 2

The keyword network for Cluster 1, which focuses broadly on financial literacy, is relatively sparse, with satellite connections to terms such as "financial education," "income," "small and micro enterprises," "determinants," "fintech adoption," "digital financial literacy," and "emerging economies." This low density reflects the breadth of the search scope and the minimal overlap of keywords across papers from different sub-disciplines. Cluster 2, which is limited to Business, Management, and Accounting, yields a much richer and more connected network. The main node "financial literacy" is now connected to a set of terms that include "financial knowledge," "financial well-being," "financial education," "risk aversion," "retirement planning," "investment," "savings," "decision-making," "household finance," "digital finance," "fintech adoption," "SMEs," "gender," "trust," "sustainability," "entrepreneurship," "young adults," "financial vulnerability," "COVID-19," "cryptocurrency," and "insurance literacy." This topology reveals that financial literacy research in the business literature is truly multi-threaded, linking individual-level behavioral outcomes (decision-making, savings) with firm-level performance indicators (SME growth, desirability) and macro-level financial system dimensions (fintech adoption, digital finance).

The keyword for Cluster 2 is quite informative. The terms "gender," "SMEs," "trust," "fintech adoption," "sustainability," and "digital finance" appear in the recently published cluster, indicating that gender-differentiated financial literacy, fintech-mediated financial inclusion, and sustainable finance have become a primary focus of contemporary business scholars. In contrast, more phrases like "retirement planning," "risk aversion," and "household finance" reflect a longer intellectual tradition in the field.

Keyword Networks in the MSME Context: Cluster 3

The introduction of MSME-related search phrases (Cluster 3) significantly altered the network. The resulting co-emergence topology revealed six key thematic clusters "financial literacy" as the central node: (a) a cluster linking "MSMEs," "accounting background," "financial reporting," and "digital technology," indicating the governance and reporting dimensions of MSME financial competency; (b) a cluster linking "financial inclusion" with "women," highlighting gender-based access barriers; and (c) a cluster linking "developing economies" with "disruptive innovation." The overlay map for Cluster 3 reveals that recent scholarly attention has gravitated toward "developing economies," "disruptive innovation," "digital technology," "environmental sustainability," and "financial inclusion." This aligns with the global shift toward examining whether digital tools can simultaneously enhance financial literacy, business desirability, and inclusive growth among MSMEs in low-income contexts (Bhat et al., 2025).

The Emerging-Country: Cluster 4

The most focused search clusters include developing country qualifiers, resulting in a concise yet contextually rich network of terms. The primary node "financial literacy" is connected to: "fintech adoption," "fintech," "multi-stakeholder perspective," "credit constraints," "agricultural enterprises," "risk management," "corporate culture," "developing country financial literacy," "agricultural value chains," "entrepreneurship ecosystems," and "digital financial literacy." The focus map focuses primarily on academic attention on financial literacy and its direct determinants, with a secondary focus on agricultural enterprises and developing country financial literacy, reflecting the importance of MSME studies in the literature on developing country economies.

The overlay map for Cluster 4 shows a temporal gradient: "digital financial literacy" and "fintech adoption" are the most recent publications (post-2022), while "credit constraints" and "agricultural enterprises" are somewhat older academic concerns. This temporal distribution suggests a shift from structural financial challenges (credit availability) to capability-based explanations (DFL as a driver of fintech adoption and financial resilience).

FINDINGS AND DISCUSSION

Findings

Overall, based on bibliometric data result indicates a rapidly growing literature in volume but a lack of regional and contextual specificity when it comes to MSMEs in developing countries. Over 7,000 publications on financial literacy have been published in the past decade, yet only 26 peer-reviewed studies address DFL, MSMEs, and emerging/developing country environments. This disparity is not simply due to research priorities, it also reflects real structural barriers to conducting this type of research, such as limited funding for field studies in low-income settings, data scarcity, and difficulties in operationalizing "digital financial literacy" in environments where digital infrastructure is still developing (Demirgüç-Kunt et al., 2018; Klapper et al., 2016).

According to keyword co-occurrence analysis, the current DFL-MSME-developing country literature is based on a set of core constructs: financial literacy as a predictor of fintech adoption, credit access, and business performance, financial inclusion as a driver and outcome of DFL, and digital technology as a mediating mechanism. These components have been well-theorized independently, but rarely combined in a single empirical study, explaining the fragmented nature of the network map. The temporal overlap map consistently shows that the most intellectually dynamic locations, where new ideas are tested, are at the intersection of digital financial literacy, fintech adoption, environmental desires, and multi-stakeholder governance of the MSME financial ecosystem. This aligns

with a broader trend in the development finance literature, where historians are beginning to investigate whether digital financial instruments can bridge the gap between financial inclusion and sustainable development goals (Morgan & Long, 2020; Setiawan et al., 2022).

Table 2. Dominant and Emerging Theoritical Perspectives in Digital Financial Literacy (DFL) Research among MSMEs in Emerging Countries

Theoretical Perspective	Core Assumption	Main Variables Examined	Dominance in Literature	Representative Studies	Research Opportunities
Technology Acceptance Model (TAM)	Adoption depends on perceived usefulness and ease of use.	Fintech adoption, digital payments, mobile banking, trust	Dominant	Candraningrat et al. (2021); Choung et al. (2023); AlSuwaidi & Mertzanis (2024)	Integrate cybersecurity awareness and digital risk perception.
Theory of Planned Behavior (TPB)	Behavior influenced by attitudes, norms, and perceived control.	Financial behavior, fintech utilization, decision-making	Dominant	Setiawan et al. (2022); Mireku et al. (2023)	Examine peer learning and social influence.
Human Capital Theory	Knowledge and skills improve business performance.	Financial literacy, digital skills, entrepreneurial capability	Dominant	Lusardi & Mitchell (2014); Kumar et al. (2023)	Study digital competencies and resilience.
Resource-Based View (RBV)	DFL is a strategic resource creating advantage.	DFL capability, innovation, competitiveness	Moderately Used	Adomako et al. (2016); Koskelainen et al. (2023)	Link DFL to sustainable advantage.
Financial Capability Theory	Outcomes depend on knowledge, skills, confidence, and access.	Financial well-being, inclusion, resilience	Growing	Morgan & Long (2020); Choung et al. (2023)	Develop multidimensional DFL scales.
Social Learning Theory	Skills acquired through observation and networks.	Peer learning, mentoring, ecosystems	Emerging	Choung et al. (2023); Mireku et al. (2023)	Explore informal learning channels.
Diffusion of Innovation Theory	Technology adoption spreads through	Innovation adoption, fintech diffusion	Emerging	AlSuwaidi & Mertzanis (2024); Yang et al. (2023)	Investigate adoption barriers.

	social systems.				
Institutional Theory	Regulatory and cultural pressures influence adoption.	Policy, regulation, ecosystem quality	Emerging	Demirgüç-Kunt et al. (2018); Shi et al. (2025)	Cross-country institutional comparisons.
Financial Inclusion Theory	Access to finance supports development.	Inclusion, credit access, digital finance	Emerging	Morgan & Long (2020); Yang et al. (2023)	Study mediating role of DFL.
Dynamic Capability Theory	Firms adapt competencies to technological change.	Transformation, adaptability, resilience	Emerging and Rapidly Growing	Koskelainen et al. (2023); Shi et al. (2025)	Examine DFL as dynamic capability.

Source: Data Processed by Author

Discussion Research Gaps and Future Agenda

Based on bibliometric mapping, we identified five key research gaps that require urgent academic attention. First, context-specific empirical research is urgently needed. Existing research is dominated by cross-sectoral surveys from Indonesia, South Africa, and several Sub-Saharan African countries. Longitudinal research on how Digital Financial Language (DFL) evolves along with fintech adoption and firm performance, and whether DFL improvements are sustainable over time, is lacking. Countries with significant mobile money expansion, such as Bangladesh, Ethiopia, Myanmar, and Bolivia, are largely underrepresented in the Scopus-indexed literature (Rabbani et al., 2020).

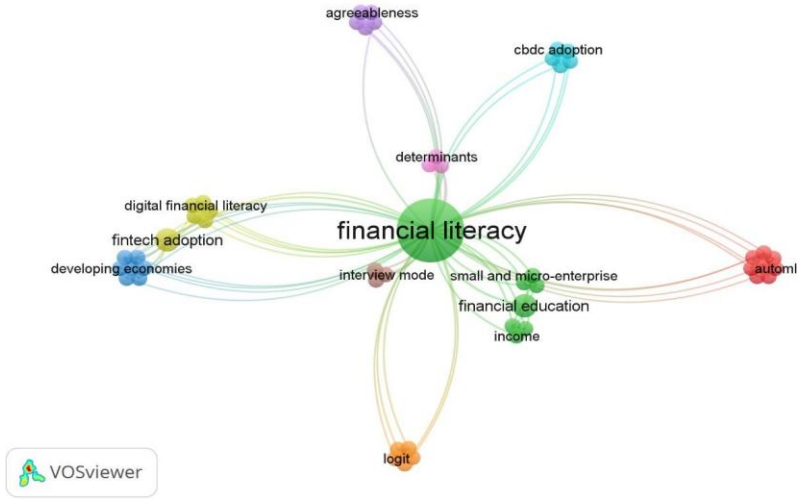


Figure 2. Overlay Visualization Cluster 1 (7.219 documents)

Second, cross-country comparative studies are needed. Current research approaches developing countries as a homogeneous group, hiding significant differences in institutional quality, digital infrastructure development, cultural attitudes toward financial risk, and regulatory frameworks for fintech firms. Comparative research examining how contextual variables modify the DFL-performance relationship would significantly enhance development theory (Zupic & Čater, 2015; Donthu et al., 2021).

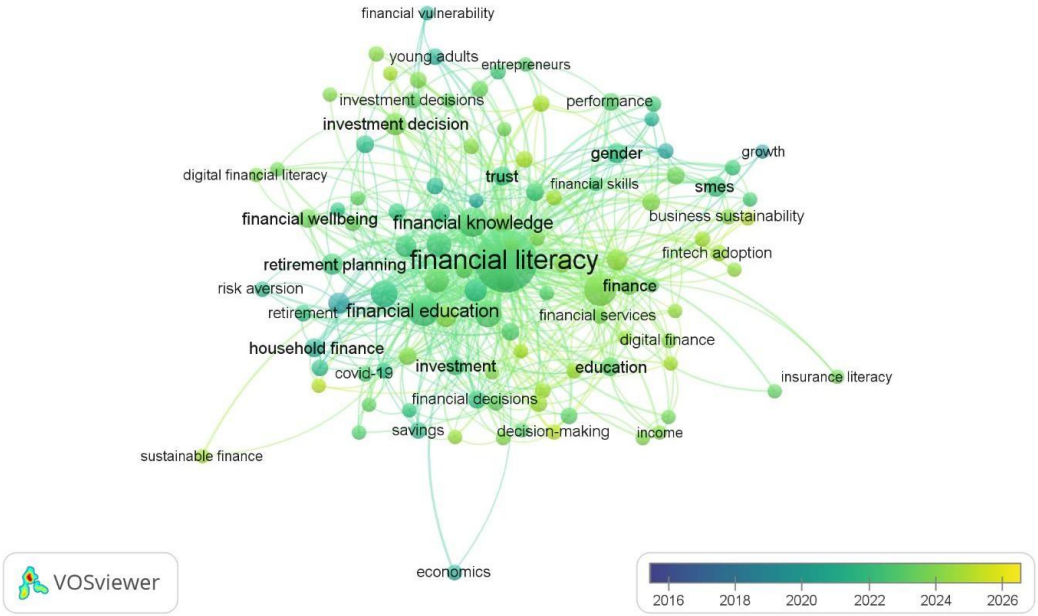


Figure 3. Overlay Visualization Cluster 2 (7.219 documents)

Third, the gender dimension of DFL among MSME owners in emerging markets remains under-researched. Keyword co-occurrence analysis in Clusters 2 and 3 reveals "gender" as a prominent node, but the most contextually targeted network, Cluster 4, does not feature gender as a distinct cluster, suggesting that the gender-DFL intersection remains under-researched in the most focused body of literature. Given that women hold more informal and micro-enterprises in emerging markets and face higher barriers to accessing digital financial services, this revelation is particularly significant (Lusardi, 2019; Klapper et al., 2016).

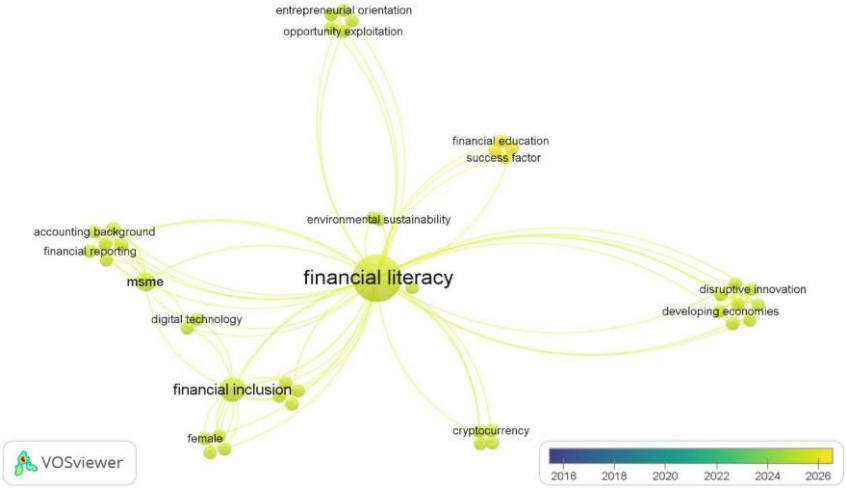
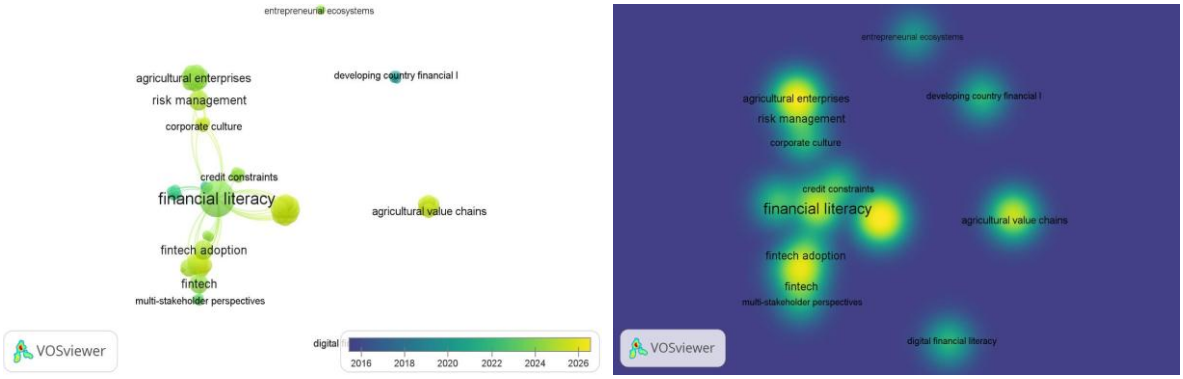


Figure 4. Overlay Visualization Cluster 3 (740 documents)

Fourth, the relationship between DFL and financial risk behavior in MSMEs requires further study. The Cluster 2 network identified "financial vulnerability" and "risk aversion" as related to financial literacy; however, empirical models linking specific DFL dimensions (e.g., knowledge of digital credit products, awareness of cybersecurity risks) to risk management practices at the MSME level are scarce. Understanding this relationship is

crucial for developing successful financial education programs that go beyond information transfer and encourage behavioral change (Adomako et al., 2016).



(a) (b)

Figure 5. Overlay and Density Visualization Cluster 4 (64 documents)

Fifth, policy-oriented research assessing the performance of DFL programs aimed at MSME owners in developing countries is almost completely absent from the Scopus corpus. Governments and development organizations in Indonesia, Kenya, Ghana, and Pakistan have launched mobile-based financial literacy initiatives, but rigorous evaluation studies using quasi-experimental designs or randomized controlled trials have not yet appeared in a significant number of peer-reviewed publications. This gap reduces the evidence base available to policymakers for planning large-scale DFL programs.

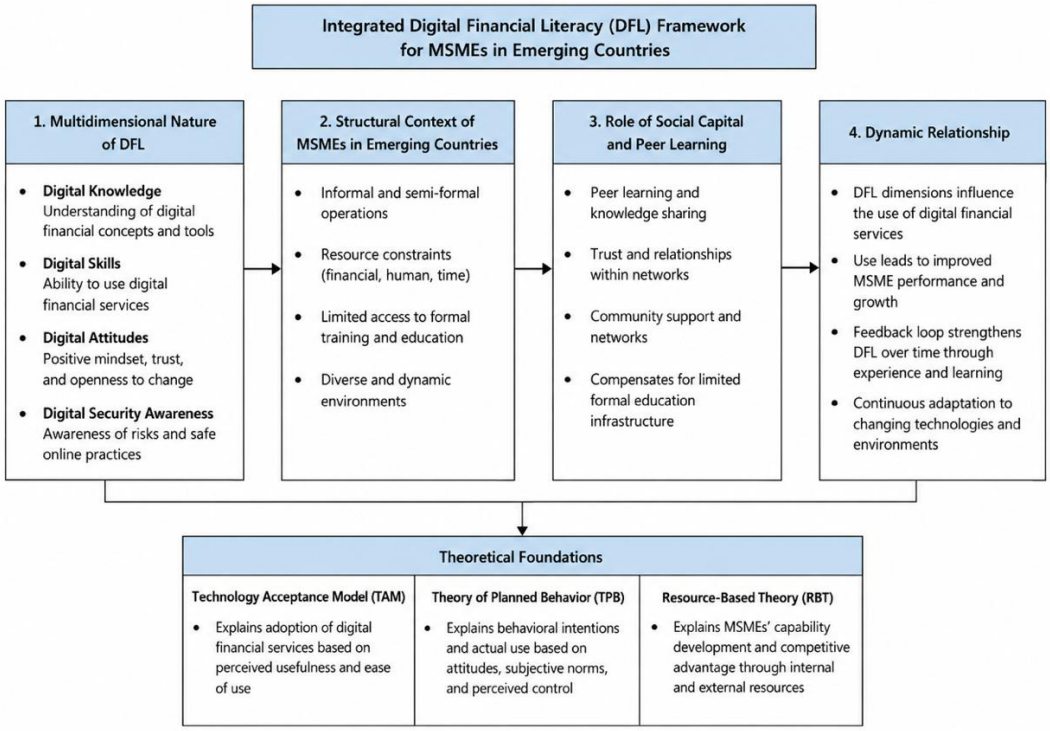


Figure 6. Digital Financial Literacy Framework for MSMEs in Emerging Countries

Based on Figure 6, theoretically, this paper consists of creating an integrated DFL framework tailored to the situation of MSMEs in developing countries. The framework needs to encompass: (a) the multidimensional nature of DFL (digital knowledge, digital skills, digital attitudes, and digital security awareness); (b) the structural context of informal and

semi-formal MSME operations that characterizes the business environment of developing countries; (c) the role of social capital and peer learning in DFL acquisition, given the limited formal education infrastructure in many developing regions; and (d) the dynamic relationship. Existing theoretical frameworks such as the Theory of Acceptance Model (TAM), the Theory of Planned Behavior (TPB), and resource-based theories have some explanatory value, but they need to be contextualized and integrated to incorporate these additional dimensions (Morgan & Long, 2020; Setiawan et al., 2022; Candraningrat et al., 2021; AlSuwaidi, 2024).

The rapid proliferation of digital financial services in developing countries is fundamentally changing the operating environment for MSMEs, making digital financial literacy (DFL) an increasingly critical factor for business survival and success. Despite this growing practical urgency, the academic literature on DFL among MSMEs in developing countries is relatively fragmented and geographically limited, with existing studies focusing on a few countries and rarely incorporating the full complexity of the digital financial ecosystem that MSME owners face on a daily basis. This gap has serious real-world consequences: without a consolidated and systematically mapped evidence base, policymakers risk designing financial inclusion programs that are out of step with the actual digital literacy barriers faced by small business owners or insufficiently grounded in the contextual realities of emerging markets.

CONCLUSION

This bibliometric study describes the state of digital financial literacy research among MSMEs in developing countries from 2016 to 2026, using Scopus-indexed literature. The study charts the rapid expansion of the field through four progressive search clusters and rigorous visualization using VOSviewer, while also documenting its fragmentation and geographic correlation. Financial literacy remains the dominant core concept, but digital financial literacy, fintech adoption, financial inclusion, and digital technology have emerged as the most active thematic areas.

Despite the importance of digital financial literacy (DFL) for MSMEs in developing countries, given their reliance on digital financial technologies for market access, lending, and payments, the academic literature devoted to it is very limited. Only 26 peer-reviewed studies cover DFL, MSMEs, and the developing country context simultaneously, and the author collaboration networks among these articles are largely protected. Based on the literature overview, several topics for future research are recommended. First, cross-country comparative studies that systematically examine how institutional quality, financial risk, and digital infrastructure maturity influence the relationship between digital financial literacy and MSME. Second, future research should focus on gender-different dimensions of digital financial literacy among MSME owners. Third, evaluations of quasi-experimental trials and randomized controlled trials of government and NGO digital financial literacy programs aimed at MSME owners in emerging markets are lacking in the peer-reviewed literature, and this may be the most practical area of research for the future. This study is limited by the use of a single database (Scopus) and Open Access eligibility criteria, which may have resulted in the omission of relevant studies indexed in other databases or available only through subscription access. The findings should be interpreted with caution, as the review was restricted to Scopus-indexed Open Access journal articles and may not reflect the full spectrum of available scholarly evidence.

AUTHOR CONTRIBUTIONS

"Conceptualization, A.D.A. and A.M.; Methodology, A.D.A.; Software, G.W.M.Z; Validation, A.D.A.; Formal Analysis, N.N.; Resources, G.W.M.Z; Data Curation, G.W.M.Z; Writing –

Original Draft Preparation, A.D.A.; Writing – Review & Editing, A.M.; Visualization, G.W.M.Z; Supervision, N.N. & N.A.L.; Project Administration, A.D.A.; Funding Acquisition, A.D.A. and A.M.".

CONFLICTS OF INTEREST

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