Jurnal Industri Kreatif dan Kewirausahaan **e-ISSN: 2620-942X**
Vol 8, No. 2, 2025

FINANCIAL LITERACY TRENDS IN THE DIGITAL ECONOMY: A BIBLIOMETRIC STUDY OF COASTAL MSMES IN GORONTALO CITY

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ABSTRACT

This research employs bibliometric tools including PRISMA, VOSviewer, and Publish or Perish (PoP) to systematically analyze 28 peer-reviewed articles from international databases (2020–2025), identifying dominant keywords, thematic clusters, and authorship networks relevant to digital financial literacy. By doing so, it fills a critical gap in understanding the intersection of digital finance, entrepreneurship, and regional economic disparities. The study contributes to the state of the art by offering a contextualized bibliometric roadmap and a synthesis of thematic trends, especially in underexplored rural and coastal economies. Key findings highlight an accelerating trend in digital financial literacy publications post-pandemic, with increased global academic collaboration and focus on financial inclusion, digital entrepreneurship, and fintech adoption. In the Gorontalo context, low digital literacy among coastal MSMEs exacerbated by infrastructure limitations and policy gaps hinders their ability to leverage digital financial tools effectively. The research identifies a strong correlation between local government intervention, tailored digital education, and improved SME sustainability in marginalized regions. This study has substantial implications for evidence-based policymaking, advocating for localized digital literacy initiatives, infrastructure investments, and adaptive regulatory frameworks. The results are expected to guide strategic planning for digital inclusion and enhance the competitiveness of coastal MSMEs in the emerging digital economy.

Keywords: *Financial Literacy, Digital Economy, Coastal MSMEs, Bibliometric Analysis, Fintech Adoption*

INTRODUCTION

The rapid advancement of the digital economy increasingly demands that micro, small, and medium enterprises (MSMEs), including those located in coastal areas, possess adequate financial literacy. Sound financial literacy is essential to enhance financial decision-making capabilities and access to digital financial services. Globally, the growth of the digital economy has driven significant transformations across various sectors, including MSMEs. In Indonesia, the digital economy is projected to reach a value of USD 109 billion by 2025, up from USD 82 billion in 2023, with e-commerce identified as the primary contributor (INDEF, 2024).

MSMEs contribute approximately 61% to Indonesia's Gross Domestic Product (GDP) in 2023, equivalent to IDR 9,580 trillion KADIN, (2023). However, to remain competitive and adaptive within an increasingly dynamic digital economy ecosystem, MSME actors must attain sufficient financial literacy, particularly in understanding technology-based financial services.

The 2025 National Survey on Financial Literacy and Inclusion (SNLIK) recorded an increase in Indonesia's financial literacy index from 65.43% in 2024 to 66.46% in 2025, while the financial inclusion index rose from 75.02% to 80.51%. Despite these improvements, a gap persists between knowledge and the actual utilization of financial services, particularly among MSMEs KADIN, (2023)

Table 1. National Survey on Financial Literacy and Inclusion

Tahun	Indeks Literasi Keuangan (%)	Indeks Inklusi Keuangan (%)	Sumber
2022	49,68	-	OJK, (2022)
2023	58,00	72,00	OJK, (2023)
2024	65,43	75,02	OJK & BPS, (2025)
2025	66,46	80,51	OJK & BPS, (2025)

Sources: adopted from: OJK & BPS, (2025); OJK, (2022, 2023)

Low levels of financial literacy have a direct and detrimental impact on business management capabilities. Deficiencies in preparing financial statements, managing cash flow, and selecting appropriate digital financial instruments present substantial obstacles to improving business competitiveness. While numerous studies have addressed financial literacy in relation to MSMEs, there remains a significant lack of scholarly attention focusing on research trends in financial literacy within the digital economy—particularly through a bibliometric lens in the Indonesian context (Aditya, 2021). This gap is especially pronounced in coastal regions such as Gorontalo City, which have yet to become the central focus of empirical investigation.

A bibliometric approach is therefore crucial to this study, as it enables a systematic mapping of scientific developments, research collaborations, and thematic trajectories in the field. Through bibliometric analysis, researchers can identify underexplored areas of inquiry, uncover influential academic networks, and extract key thematic keywords from the broader discourse (Jallad et al., 2025). Gorontalo City, as a coastal region with distinctive MSME characteristics, recorded a total of 105,509 MSMEs in 2024, a significant increase from 82,732 in 2023. Despite this growth, there is still no official data

concerning the integration of digital technologies or the financial literacy levels of local MSME actors. The integration between financial literacy and digital service adoption among MSMEs in Gorontalo remains largely unstudied. Hence, a scientific mapping-based approach is essential to understand the trajectory of related research and to identify underrepresented areas for further scholarly exploration.

Table 2. Growth of MSMEs in Gorontalo Province

Year	Total MSME's	Growth	Sources
2021	±68.000 units	Post-pandemic recovery	Provincial MSME Data 2021
2022	±75.000 units	Driven by economic recovery programs	Provincial MSME Data 2022
2023	82.732 units	Significant growth	Provincial MSME Data 2023
2024	105.509 units	Sharp increase due to digitalization	Provincial MSME Data 2024
2025	(proyeksi) ±115.000 units	Projected moderate increase	MSME Growth Projection 2020-2025

Sources: adopted from (Gorontalo, 2022, 2023; PemprovGorontalo, 2024)

Digital technology adoption has been shown to significantly improve digital financial literacy, which in turn positively impacts the financial performance of MSMEs in Indonesia (Kusumawardhani et al., 2023). Moreover, a combination of financial literacy and access to digital financial services explains approximately 45.7% of the variance in MSME performance. These findings underscore the critical importance of developing digital financial literacy as a strategic foundation for enhancing MSME competitiveness in an increasingly digitized market landscape (Bakashaba et al., 2016).

Globally, research on financial inclusion and digital financial literacy has surged between 2020 and 2023, especially in Southeast Asia (Devender et al., 2025). However, studies specifically examining coastal MSMEs in Gorontalo within this context remain absent. The integration of financial literacy with digital inclusion plays a pivotal role in advancing the Sustainable Development Goals (SDGs), particularly in microeconomic development (Jallad et al., 2025). The effectiveness of digital financial technology adoption largely hinges on the end-user's level of digital literacy. A 2025 study by Thaha reinforces this argument, showing that MSMEs with higher digital financial literacy are more agile in adopting technologies, expanding markets, and sustaining operations amid economic fluctuations. Digital transformation is not merely a technological shift but a profound change in business culture and management (Thaha et al., 2025).

This study offers a novel contribution by combining bibliometric analysis with a geographically localized focus on Gorontalo City. It underscores the urgency of financial literacy research in the digital economic domain and seeks to bridge the existing literature gap. In doing so, it proposes a strategic roadmap for strengthening digital financial literacy among coastal MSMEs, contributing both theoretically and practically to regional development and digital inclusion policies.

METHOD OF IMPLEMENTATION

This study employs a bibliometric approach to analyze scientific publications related to digital financial literacy in micro, small, and medium enterprises (MSMEs). The data sample comprises reputable international articles published within the last five years (2020–2024), sourced from databases such as ScienceDirect and Garuda. The research begins by formulating the problem through a mapping of digital financial literacy trends within the context of coastal MSMEs in Gorontalo City. The initial phase aims to explore the evolution of digital financial literacy as a research topic relevant to MSMEs, with a particular focus on identifying key recurring terms and themes in the literature.

This phase involves collecting data from various scholarly sources to analyze dominant topics and emerging trends using bibliometric methods. The outcome will be a visual map illustrating the development and interconnection of major research themes, which will serve as a foundation for formulating strategic policy recommendations aimed at strengthening financial literacy among coastal MSMEs. Upon completing the bibliometric analysis and data visualization, the study is expected to produce a thematic map that reflects key trends in digital financial literacy research as it relates to coastal MSMEs. These findings will offer clearer insights into the evolution of the field and clarify how digital financial literacy influences MSME success.

The anticipated performance indicators, such as increased stakeholder engagement and community participation in the research process, will demonstrate the effectiveness of the mapping and analytical efforts. In this way, the study provides a strong foundation for the development of policies and interventions that support the digitalization and financial empowerment of coastal MSMEs.

More specifically, the expected outcomes include:

1. Mapping Global Trends and Research Dynamics: This study aims to provide a comprehensive overview of the evolving literature on digital financial literacy. The bibliometric analysis will identify:
   a. Dominant keywords and their frequency patterns
   b. The most prolific authors in the field
   c. Countries or regions that serve as research hubs
   d. Leading academic journals cited in this area
2. Collaborative and Thematic Visualization: Findings will be visualized using network mapping tools such as VOSviewer, which will illustrate:
   a. Relationships between key themes (co-occurrence analysis)
   b. Collaborative networks among authors (co-authorship network)
   c. Temporal mapping of the emergence of major research issues
3. Identification of Research Gaps: Through literature mapping and synthesis, the study aims to identify underexplored areas, particularly concerning:
   a. Digital financial literacy among small and micro-scale MSMEs
   b. Implementation of digital financial technologies in coastal areas
   c. The role of local government and policy in supporting MSME digital transformation

Accordingly, this research is expected to contribute to two primary dimensions: the advancement of global scholarly knowledge and the strengthening of evidence-based policymaking at the local level

RESULTS AND DISCUSSION

The PRISMA protocol was employed to ensure a systematic and relevant selection of literature, comprising the stages of identification, screening, eligibility, and inclusion.

Inclusion and Exclusion Criteria

The urgency of addressing digital financial literacy within the context of MSMEs, particularly in coastal regions such as Gorontalo City, lies in its role as a catalyst for technology-based economic independence. Adequate literacy enables MSME actors to access digital financial services with greater confidence, understand financial instruments, and make more rational and sustainable decisions. The synergy between digital technology and financial awareness strengthens the sustainability of local businesses amid economic disruptions (Raman et al., 2025). Meanwhile, the adoption of digital banking services is heavily influenced by perceptions of ease and benefit, which are suboptimal without basic financial understanding (Singh & Yadav, 2025). Therefore, government policy support is essential in creating an inclusive digital financial literacy ecosystem to ensure that MSMEs are not left behind in the wave of national economic transformation (Abu et al., 2025).

Before proceeding to the analysis stage, inclusion and exclusion criteria were established to guide the selection of articles deemed suitable for further analysis. These criteria ensure that only articles aligned with the study's focus—namely, digital financial literacy in the domain of MSME business and economics—were analyzed (Crecente- et al., 2023; Fanjul et al., 2023; Pattnaik et al., 2024; Zhang & Li, 2025). This approach minimizes the risk of deviation from the research focus and enhances the academic quality of the findings.

Table 3. Inclusion and Exclusion Criteria

Category	Inclusion	Exclusion
Main Topic	Articles on digital financial literacy, financial inclusion, digital technology adoption, and coastal MSME empowerment	Articles on macro-finance, corporate banking, or non-digital literacy
Dicipline Area	Business, management, digital economy, entrepreneurship, fintech, regional development	Engineering, agriculture, medicine, unrelated humanities
Database & Sources	Scopus, ScienceDirect, Springer, Taylor & Francis, Garuda, Google Scholar	Blogs, popular media, unindexed conference proceedings
Types of Publication	Peer-reviewed scientific journals (original research, reviews, bibliometrics)	Editorials, opinions, letters to the editor, conference abstracts
Time Frame	January 2020 – December 2025	Before 2020
Bahasa	Indonesian and English	Languages other than Indonesian & English
Accessibility	Full-text available	Not accessible

Source: Authors' own compilation (2025)

Table 3 shows that literature selection focused on topics directly related to digital financial literacy, financial technology innovation, and MSMEs as local economic actors. The prioritized fields lie within the domains of economics, business, and

entrepreneurship, while non-relevant disciplines such as engineering or humanities were excluded to maintain thematic focus. These criteria align with approaches such as that of Zhang et al. (2025), which emphasizes the importance of contextual literature in mapping digitalization trends.

Furthermore, accepted publications were limited to indexed and peer-reviewed journals to ensure scientific quality, in line with bibliometric best practices (Fanjul et al., 2023; Pattnaik et al., 2024). Articles from popular or unindexed sources were excluded to avoid bias and preserve analytical objectivity. The defined publication window (2020–2025) enhances the data's relevance to post-pandemic phenomena, particularly the rapid digital transformation of the MSME sector (Hasan et al., 2024; L. Y. Tay et al., 2022).

Research on financial literacy within the context of the digital economy has shown a significant upward trend since 2020. The post-pandemic period has driven a pressing need for digital transformation, particularly among MSMEs that must swiftly adapt to technology-based financial services. In 2022, research began to grow consistently, with a sharp increase from 2023 to 2025, indicating that this topic is gaining substantial attention from both academic and practitioner communities.

The surge in article publications over the past three years highlights that digital financial literacy has become a critical pillar in promoting financial inclusion, economic sustainability, and the resilience of microenterprises. Research by Tay et al. (2022), titled "Digital Financial Inclusion: A Gateway to Sustainability Development," emphasizes the importance of adopting digital financial services post-COVID-19 to reinforce the foundations of MSMEs. This is supported by Pattnaik et al. (2024), who demonstrate that improved digital literacy directly impacts MSME growth in developing countries. Additionally, the success of green economic transformation is also strongly influenced by the ability of business actors to access and understand digital financial services.

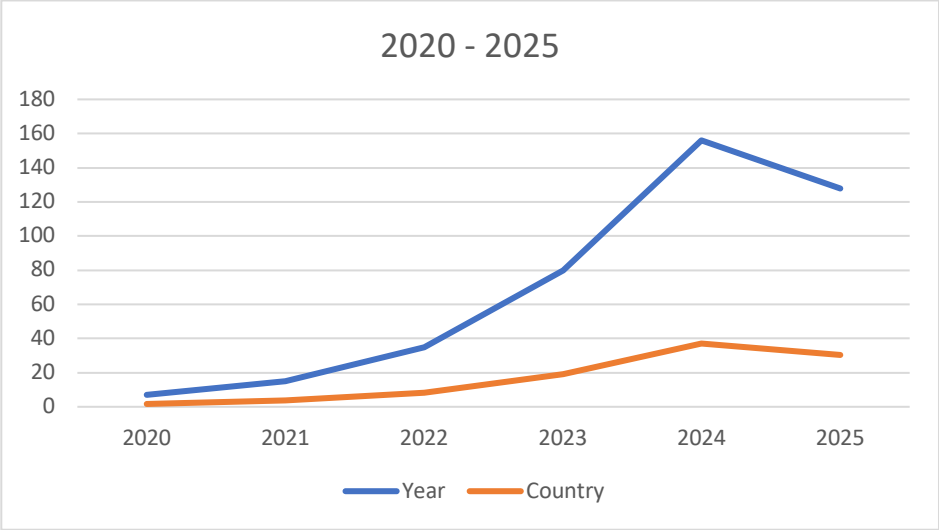


Figure 1. Trends in Relevant Articles from 2020 to 2025

The figure above illustrates the growth of scholarly publications on digital financial literacy and MSMEs from 2020 to 2025 (blue line), along with country/continent participation in these publications (orange line). A significant spike began in 2022 and peaked in 2024, reflecting a global momentum in accelerating digital transformation as a response to the economic crisis triggered by the pandemic. This increase aligns with the

urgency of financial technology adoption, both in terms of social inclusion and MSME-based economic recovery strategies (Pattnaik et al., 2024; L. Y. Tay et al., 2022).

The growing involvement of countries also indicates that digital financial literacy is no longer a national issue but has become a global discourse engaging various regions. The article by Ariff et al., (2024), underscores the importance of digital security strategies in enhancing MSME trust in fintech services, especially in Southeast Asia. Meanwhile, research by Aiupova & Erdei-Gally (2025) from Central Europe expands the perspective by illustrating how digital entrepreneurship ecosystems require robust financial literacy to foster inclusive innovation (Aiupova & Erdei-gally, 2025). Therefore, this figure reflects the academic reality that digital financial literacy is a foundational element in the global development of MSMEs.

PRISMA Diagram Flow

To ensure academic quality and integrity, the literature selection process in this study followed the PRISMA 2020 framework, which serves as an international standard for reporting systematic reviews. The PRISMA diagram facilitates transparent documentation of each stage of article selection, beginning with initial identification, screening, eligibility assessment, and culminating in the inclusion of articles for final analysis. This approach is crucial for studies that rely on literature integration as the foundation for conceptual and thematic mapping (Page et al., 2021).

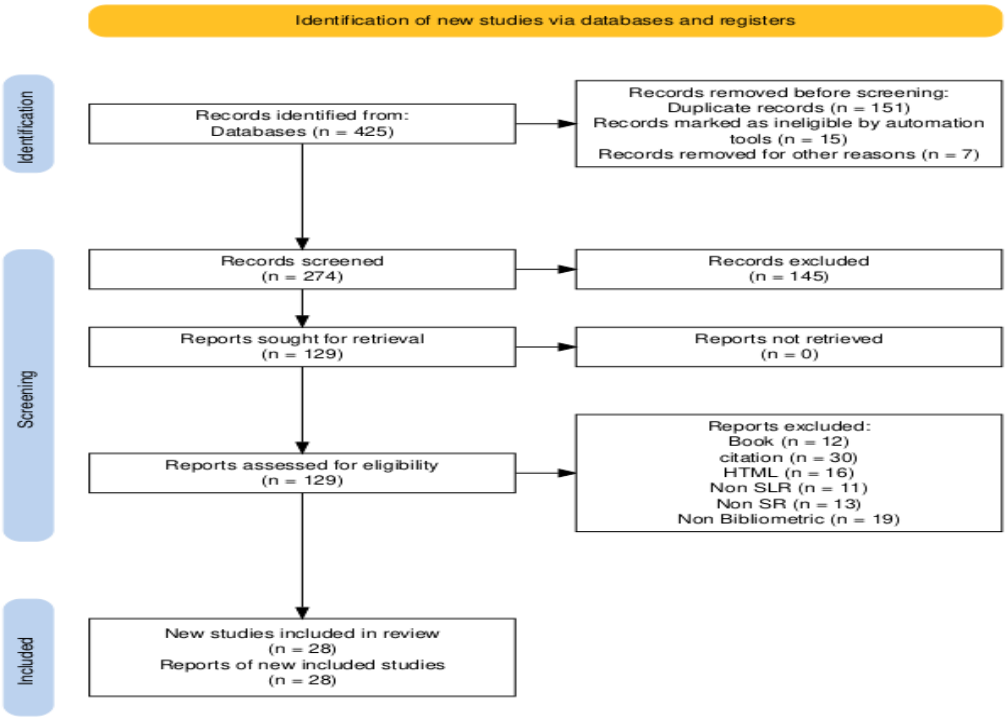


Figure 2. PRISMA Flow

From a total of 425 articles retrieved through searches in major databases such as ScienceDirect and Google Scholar, an initial screening was conducted to eliminate duplicates (151 articles), automatically excluded entries (15), and structurally irrelevant records (7). As a result, 274 articles were screened based on their titles and abstracts, yielding 129 articles deemed relevant for full-text review. These articles were then

assessed against predefined inclusion criteria, particularly in terms of publication type (limited to SLR, SR, or bibliometric studies), topical relevance, and presentation quality.

A total of 101 articles were excluded for failing to meet these criteria—such as being citations, HTML-format content, or non-academic publications. Ultimately, 28 articles were identified as eligible and relevant for in-depth analysis. These selected articles serve as the primary foundation for constructing the thematic synthesis and trend analysis of digital financial literacy in the context of empowering coastal MSMEs. This selection process not only filtered the literature but also ensured the study maintained a focused scope on post-pandemic digitalization and inclusive local economic transformation.

Collaborative and Thematic Visualization

Visualization using VOSviewer provides a rich depiction of thematic interconnections among key terms that emerged in the systematically analyzed literature. The network map helps in understanding the knowledge structure within research related to digital financial literacy and MSMEs, particularly in connection with issues such as digital transformation, financial inclusion, entrepreneurship, and local economic development. Each color cluster in the map represents closely linked themes, indicating the multidisciplinary and mutually reinforcing nature of research in this field. VOSviewer itself is a bibliometric mapping tool designed to effectively visualize co-term relationships, citations, and author collaborations, and is widely used in interdisciplinary bibliometric studies (Jan & Ludo, 2010).

Utilizing this type of visualization allows researchers to identify dominant research directions and potential gaps. In the context of this study, the thematic map reveals that digital economy, financial inclusion, entrepreneurship, and systematic literature review are central to scholarly discourse. This forms the foundation for developing a strong and contextual conceptual synthesis, particularly for enhancing digital financial literacy among coastal MSME actors.

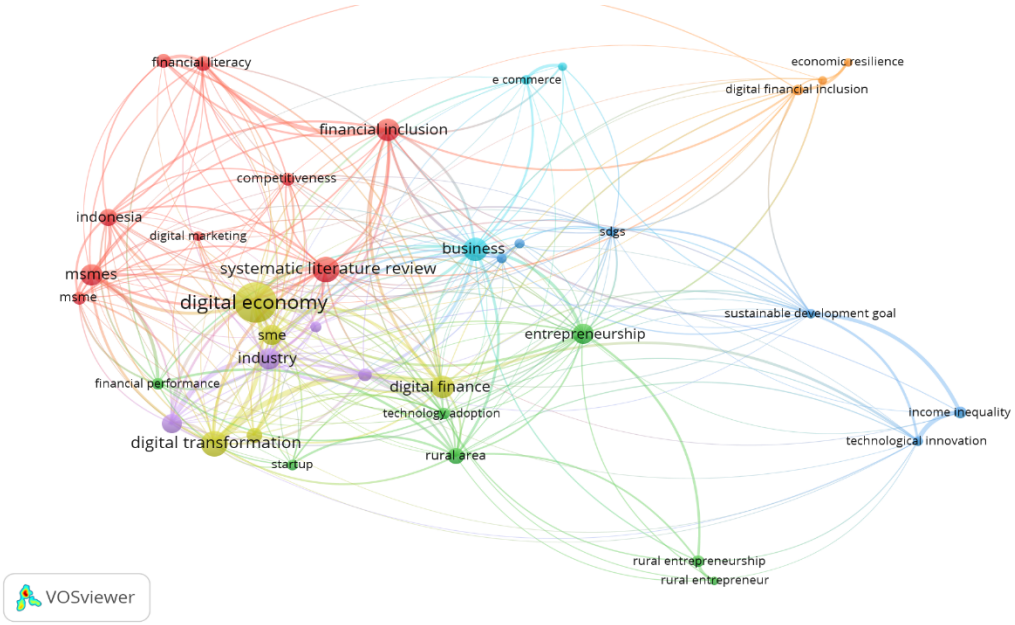


Figure 3. Thematic Linkages
Sources: Processed data (2025)

The visual map in Figure 5 illustrates the co-occurrence analysis of keywords, highlighting conceptual linkages within the literature on digital financial literacy and MSMEs. The red cluster shows dominance in themes such as financial literacy, financial inclusion, Indonesia, and MSMEs—interconnected within the context of digital financial inclusion in developing countries. Meanwhile, the green cluster focuses on entrepreneurship, rural areas, and digital finance, indicating the connection between regionally based entrepreneurship and digital finance adoption. These strong linkages reflect an integrative framework that combines micro-level (small business), macro-level (digital economy), and regional (rural) issues within the literature (Abdul-majid et al., 2024).

Other studies affirm that bibliometric mapping can uncover hidden thematic patterns in microfinance and digital technology research. Moreover, bibliometric techniques are highly effective in bridging academic and policy dimensions for developing a technology-based financial inclusion ecosystem (Liu, 2023; Sneideriene & Legenzova, 2025). The mapping can also be extended to co-authorship networks, which, although not displayed here, are crucial for analysis. These networks enable the identification of leading researchers, inter-university or inter-country collaboration hubs, and thematic collaboration patterns. A study by Chauhan et al. (2022) emphasized the importance of synergy between institutions and nations in strengthening research on MSME digital transformation—especially for broad and cross-geographical impact. Such collaboration maps can form the basis for strategic policies in building regional research centers or international partnerships in digital financial literacy (Chauhan et al., 2022).

Furthermore, this visualization also has the potential to support temporal mapping, allowing researchers to track the evolution of key issues over time. Although the current figure does not yet display the chronological evolution of keywords, growth trends in terms such as digital economy, financial inclusion, and entrepreneurship suggest increasing academic attention over the past three years, particularly in the post-pandemic era. Costa et al. (2025) highlighted the importance of temporal monitoring in identifying critical phases of literature development and formulating sharper future research agendas. By combining temporal and spatial analysis, researchers can design a contextual and responsive conceptual framework (Costa et al., 2025; Moreira et al., 2025).

Literature Synthesis

As digital disruption accelerates, a comprehensive understanding of digital financial literacy becomes increasingly vital for MSMEs, particularly micro-enterprises located in coastal regions. Digital financial literacy extends beyond basic financial knowledge, encompassing the readiness to adopt digital technologies in business operations and financial decision-making. Effective digital financial inclusion requires both technological preparedness and sensitivity to the socioeconomic context of business actors (Wu & Lin, 2025). Moreover, behavioral and demographic-based approaches are essential for designing fintech adoption strategies tailored to traditionally underserved communities (Herzallah et al., 2025).

Geographic and policy contexts also play a critical role in enabling MSME digital transformation. In coastal areas, infrastructural limitations, network accessibility, and digital gaps pose real challenges to the diffusion of financial technologies. Enhancing digital literacy and rural infrastructure can have a direct impact on improving tech-driven local economies. Therefore, adaptive regulations and digital community empowerment

by local governments are key to fostering inclusive and sustainable transformation (Hossain et al., 2024; Xu & Yang, 2025).

This synthesis builds upon prior bibliometric mapping by integrating findings from 28 selected articles to offer deeper insights into digital financial literacy in micro-MSMEs, fintech adoption in coastal regions, and the role of local policy in promoting inclusive digitalization.

Table 4. Synthesized Articles (Inclusion)

Author	Judul	Tahun	Jurnal/Publisher
Pattnaik et al.	Microfinance: A bibliometric exploration of the knowledge landscape	2024	Heliyon
Ariff et al.	A systematic literature review of the role of trust and security on Fintech adoption in banking	2024	Heliyon
Aiupova et al.	Digital entrepreneurship ecosystems: Then vs now-a future perspective	2025	Elsevier
Tay et al.	Digital financial inclusion: A gateway to sustainable development	2022	Heliyon
Raman et al.	Social entrepreneurship and sustainable technologies: Impact on communities, social innovation, and inclusive development	2025	Elsevier
Liu & Aiping	Research into microfinance and ICTs: A bibliometric analysis	2023	Elsevier
Persaud et al.	The state of financial inclusion research in developing countries	2023	Elsevier
Viira & Ants-hannes	The socioeconomic impacts of the CAP: Systematic literature review	2022	Elsevier
Hasan et al.	FinTech and sustainable development: A systematic thematic analysis using human- and machine-generated processing	2024	Elsevier
Dabija et al.	The rise in popularity of central bank digital currencies. A systematic review	2024	Heliyon
Singh et al.	User adoption of digital currency: A systematic review and future agenda using the TCCM approach	2025	Elsevier
Abu et al.	Government support for SMEs in the Fintech Era: Enhancing access to finance, survival, and performance	2025	Elsevier
Chauhan et al.	Linking circular economy and digitalisation technologies: A systematic literature review of past achievements and future promises	2022	Elsevier
S, Kiran et al.	Unlocking digitalization in the spool fabrication industry: analysis of roadblocks using the IMF-SWARA integrated TFBM	2025	Elsevier
Abdul-majid et al.	Influence of technology adoption on farmers ' well-being : Systematic literature review and bibliometric analysis	2024	Elsevier

Author	Judul	Tahun	Jurnal/Publisher
Molete et al.	The Impact of IT Strategic Planning Process on SME Performance : A Systematic Review	2025	MDPI
Kgakatsi et al.	The Impact of Big Data on SME Performance : A Systematic Review	2024	MDPI
Yu et al.	The impact of the digital economy on enterprise innovation behavior : Based on CiteSpace knowledge graph analysis	2023	Frontiers
Bhuiyan, Mohammad Rakibul Islam	Examining the Digital Transformation and Digital Entrepreneurship : A PRISMA Based Systematic Review	2024	Elsevier
Costa et al.	Competition or cooperation ? Disentangling the Bank-FinTech interaction	2025	Elsevier
Sethi et al.	Emerging dimensions in Fintech : Insights from bibliometric analysis	2025	Elsevier
Brogi et al.	New but naughty . The evolution of misconduct in FinTech	2024	Elsevier
Bansal et al.	Harnessing digital finance for sustainability : An integrative review and research agenda	2025	Elsevier
Sneideriene & Legenzova	Greenwashing prevention in environmental, social, and governance (ESG) disclosures : A bibliometric analysis	2025	Elsevier
Chan et al.	Energy poverty and beyond : The state , contexts , and trajectories of energy poverty studies in Asia	2023	Elsevier
Offiong et al.	Methodological frameworks and review Analysing FinTech in Microfinance: Methodologic	2024	Elsevier
Matekaire& Siriram	An overview of factors influencing the adoption of IoT payment systems in South Africa ' s small and medium-sized retail enterprises	2025	Elsevier

Source: Processed data (2025)

Digital Financial Technology Implementation in Coastal Areas

Digital financial technology implementation in coastal regions continues to face structural barriers—ranging from limited internet access to digital infrastructure gaps. These constraints reduce the effectiveness of digital payment systems, online banking, and bookkeeping apps among coastal MSMEs (S et al., 2025). This is compounded by a lack of digital education and mentoring. In remote areas, financial literacy programs rarely reach MSME communities comprehensively (Abu et al., 2025). As a result, most coastal enterprises use only basic digital tools such as e-wallets, while overlooking advanced features like business analytics, automated accounting, or marketplace integration (Herzallah et al., 2025).

Context-specific approaches are therefore critical. Implementing fintech without local adaptation—e.g., to language, cash-based habits, or traditional business models—risks rejection and inefficiency (Matekaire & Siriram, 2025). Participatory, community-

driven interventions are more likely to succeed. Mobile technology, when adapted to local needs, can actively integrate coastal MSMEs into the digital economy. Multi-stakeholder collaboration—between local governments, financial institutions, and tech startups—is essential for bridging digital divides and enhancing competitiveness (L. Tay et al., 2022).

The Role of Local Governments and Policies in Supporting Digital Transformation

Local governments play a pivotal role in ensuring equitable MSME digital transformation, particularly in areas with low technology adoption capacity. Digital literacy strategies must be supported by local policies offering training, infrastructure, and digital ecosystems that empower small business actors (Persaud & Thaffe, 2023). Without proactive government involvement, digital technology remains an exclusive tool for well-established businesses.

Top-down policies often fail to reach informal MSMEs due to contextual misalignment, as highlighted by Hasan et al., (2024). Therefore, local governments must implement participatory and adaptive strategies such as community-based digital learning hubs or tech-enabled financial consultation services at the village or district level.

Further, aligning local policy strategies with emerging technologies is crucial. Local regulators must act as facilitators not just supervisors by enabling collaboration among MSMEs, fintech providers, and formal financial institutions (Brogi & Lagasio, 2024). When designed as part of an ecosystem approach, digital transformation becomes not just an administrative goal, but a sustainable grassroots economic movement.

Based on the synthesis of 28 selected articles, this study concludes that digital financial literacy among MSMEs especially micro-enterprises—still faces significant structural and cultural challenges. Despite post-pandemic growth in fintech adoption, many micro-businesses have not fully integrated digital tools into their financial management. Key barriers include limited risk understanding, lack of access to training, and persistent reliance on traditional financial practices (Bhuiyan, 2024; Sethi et al., 2025). In coastal regions, weak digital infrastructure and insufficient local support further restrict effective implementation (Matekaire & Siriram, 2025).

The implications highlight the need for community-based, context-driven policy approaches, particularly from local governments. Digital transformation cannot be left to tech providers and financial institutions alone—it requires active intervention from local actors to build inclusive digital ecosystems. Local governments must create digital learning spaces, offer technology adoption incentives, and enact regulations that connect MSMEs to broader digital opportunities (Chauhan et al., 2022; Moreira et al., 2025). This study also contributes to thematic literature mapping and emphasizes the need for further research on region-based digital financial literacy stressing that effective solutions must account for social, spatial, and behavioral gaps embedded in the Indonesian MSME context (Yang et al., 2023; Yu et al., 2023).

CONCLUSIONS AND SUGGESTIONS

This study concludes that research on financial literacy in the digital economy has experienced a significant and consistent increase over the 2020–2025 period, particularly following the COVID-19 pandemic. Bibliometric analysis reveals that digital financial literacy has become a central theme in discussions surrounding MSME sustainability, fintech adoption, and financial inclusion, with strong thematic linkages to entrepreneurship, digital transformation, and regional development. However, despite the

growing volume of global research, studies focusing on coastal MSMEs, especially in regions such as Gorontalo City—remain limited and underrepresented in the literature.

The findings indicate that coastal MSMEs face multidimensional challenges, including low levels of digital financial literacy, limited digital infrastructure, and insufficient local policy support. These constraints hinder their ability to fully utilize digital financial services beyond basic transactional functions. The study also highlights that digital financial literacy is not merely a technical capability but a socio-economic competency shaped by education, behavior, infrastructure, and institutional intervention. Consequently, the absence of localized and context-sensitive digital literacy strategies risks widening regional economic disparities. Overall, this research contributes to the literature by providing a structured bibliometric mapping of digital financial literacy trends and emphasizing the critical need for region-based approaches in strengthening the competitiveness and sustainability of coastal MSMEs in the digital economy.

Based on the findings of this bibliometric study, it is recommended that future research advance beyond literature mapping by incorporating empirical approaches to examine how digital financial literacy directly affects the performance, resilience, and sustainability of coastal MSMEs, particularly in underrepresented regions such as Gorontalo City. Researchers are encouraged to employ mixed-methods or longitudinal designs to capture behavioral, infrastructural, and institutional dynamics influencing fintech adoption. From a policy perspective, local governments should prioritize context-specific digital financial literacy programs that combine fintech training, risk awareness, and basic financial management, supported by improvements in digital infrastructure and internet accessibility in coastal areas. Furthermore, strengthening collaboration among local governments, financial institutions, fintech providers, universities, and MSME associations is essential to build inclusive digital financial ecosystems. Such coordinated efforts can ensure that digital transformation initiatives are not only technologically driven but also socially adaptive, thereby enabling coastal MSMEs to participate more effectively in the digital economy and reduce regional economic disparities

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