Journal of International Conference Proceedings (JICP)
Vol. 9 No. 5, pp 699-709, November, 2026
E-ISSN: 2621-993X P-ISSN: 2622-0989
https://ejournal.aibpmjournals.com/index.php/JICP/index

Mapping the Intellectual Landscape of Digital Financial Literacy and SME Sustainability: A Systematic Literature Review and Bibliometric Analysis

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ARTICLE INFORMATION

Publication information

Research article

HOW TO CITE
Fasihu, L. O. M. S., Intihanah, I., Tamburaka, S., Dharmawati, T., & Ramadhan, A. M. F. (2026). Mapping the intellectual landscape of digital financial literacy and SME sustainability: A systematic literature review and bibliometric analysis. *Journal of International Conference Proceedings*, *9*(5), 699-709.

DOI:
https://doi.org/10.32535/jicp.v9i5.5231

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Received: 12 September 2026
Accepted: 17 October 2026
Published: 26 November 2026

ABSTRACT

This study aims to map the knowledge structure, thematic clusters, and research trends in the field of digital financial literacy and small and medium enterprise (SME) sustainability through a systematic literature review (SLR) guided by the PRISMA 2020 protocol combined with a bibliometric analysis using VOSviewer. From an initial pool of 300 records retrieved from Google Scholar via Publish or Perish covering the period 2016–2026, 63 articles met the inclusion criteria and were analyzed. The results identify six main thematic clusters, with financial literacy and SME characteristics serving as the central node connecting the network. Density visualization reveals that dimensions related to specific geographic and demographic contexts, particularly gender, remain underexplored. Overlay visualization indicates a shift in research focus from direct relationships toward more specific constructs, including financial sophistication, business sustainability, and digital financial services. These findings suggest that future research should further examine mediating and moderating mechanisms, expand investigation into gender and regional contexts, and consider indexed databases such as Scopus or Web of Science to strengthen the generalizability of findings, thereby providing theoretical and practical contributions for researchers, policymakers, and SME actors.

Keywords: Bibliometric Analysis; Digital Financial Literacy; Fintech Adoption; PRISMA; SME Sustainability; Systematic Literature Review

INTRODUCTION

The digitalization of the financial sector has transformed the way micro, small, and medium enterprises (MSMEs) access, manage, and utilize financial services. The expansion of digital financial services, accelerated by the development of financial technology (fintech), has opened opportunities for MSMEs to broaden access to financing, improve transaction efficiency, and strengthen business competitiveness (Gupta et al., 2022; Nugraha et al., 2022). Nevertheless, the utilization of digital financial services remains highly dependent on the financial literacy of business owners, which has long been recognized as a key determinant of the quality of financial decision-making among individuals and small business owners (Lusardi & Mitchell, 2014).

In the digital era, the conventional concept of financial literacy is considered insufficient to explain how individuals and business actors interact with technology-based financial services. This has led to the development of the concept of digital financial literacy (DFL), defined as the combination of knowledge, skills, attitudes, and behaviors required to access and utilize digital financial services safely and responsibly (Alliance for Financial Inclusion [AFI], 2021; Lyons & Kass-Hanna, 2021). Several international institutions have promoted the standardization of measurement for this concept, as reflected in the DFL survey framework developed by the Organisation for Economic Co-operation and Development (OECD, 2023), as well as the multidimensional measurement instrument validated by Chhillar et al. (2024).

Numerous empirical studies indicate that DFL contributes to MSME performance and sustainability, whether through improved financial decision-making, expanded access to financing, or strengthened business resilience against external shocks (Kass-Hanna et al., 2022; Masdupi et al., 2025). In the Indonesian context, for instance, Winarsih et al. (2020) found that financial literacy mediates the effect of fintech utilization on MSME sustainability, while Djaniar et al. (2025) demonstrated that digital financial capability contributes to the sustainability of food and beverage MSMEs through the mediation of personal finance. Similar findings were reported by Agustina et al. (2026), who linked digital literacy to business sustainability through the mediation of digital payment. Related evidence from Sasirangan MSMEs in Banjarmasin identifies digital literacy, digital marketing capabilities, digitized payments, and bookkeeping as elements of a digital transformation strategy supporting business sustainability (Yani et al., 2026).

The gender dimension has also received attention in this literature. Fauzi et al. (2020) found that digital literacy significantly affects the growth of women-owned MSMEs in Indonesia, although women entrepreneurs' digital literacy levels tend to be lower than those of men. Kurniasari and Lestari (2024) reinforced this finding by showing that fintech adoption mediates the effect of financial literacy on the business performance of women-owned MSMEs. At the macro level, Usman (2026) showed that fintech adoption is one of the main drivers of financial inclusion in developing countries, while Atta (2025) found that fintech adoption by rural MSMEs increases access to financing, although it still faces constraints related to digital infrastructure and low digital literacy.

Despite this accumulation of empirical evidence, studies that specifically map the knowledge structure, dominant themes, and research trajectory of DFL in relation to MSME sustainability remain relatively limited. Guandalini (2022) emphasized the importance of systematic reviews in guiding research directions on topics related to digital transformation and sustainability, given the rapid growth in the volume of publications in this field. This gap in systematic mapping underlies the need for research that combines a systematic literature review (SLR) approach with bibliometric analysis.

The SLR approach enables a structured and transparent qualitative synthesis of prior research findings, following an established protocol (Page et al., 2021; Tranfield et al., 2003), while bibliometric analysis enables a quantitative mapping of keyword co-occurrence, collaboration, and citation patterns to identify the intellectual structure of a research field (Donthu et al., 2021; Van Eck & Waltman, 2010).

Based on the background described above, this study addresses the following research questions:

RQ1: How has the trend of publications on DFL and SME sustainability developed over time?
RQ2: What research themes or clusters have formed within the DFL and SME sustainability literature?
RQ3: How has the research focus shifted (emerging trends) across publication periods in this field?
RQ4: What research gaps can be identified as an agenda for future research?

This study is expected to provide theoretical contributions in the form of a knowledge structure map in the field of DFL and MSME sustainability, as well as practical contributions in the form of directions and recommendations for researchers, policymakers, and MSME actors in leveraging DFL to support business sustainability.

LITERATURE REVIEW

Financial Literacy and Digital Financial Literacy

Financial literacy is conventionally defined as an individual's ability to process economic information and make sound decisions regarding financial planning, wealth accumulation, and debt management (Lusardi & Mitchell, 2014). This concept has since evolved alongside the growing use of technology-based financial services, giving rise to the construct of DFL, which integrates financial knowledge with digital knowledge and skills (Lyons & Kass-Hanna, 2021).

DFL is defined as the combination of knowledge, skills, attitudes, and behaviors that enable individuals and business actors to safely access and utilize digital financial services in order to enhance financial well-being (AFI, 2021). The measurement framework developed by OECD (2023), as well as the multidimensional instrument validated by Chhillar et al. (2024), generally covers dimensions of basic and advanced knowledge of digital financial services, digital attitudes and behaviors, and the ability to manage digital risk and security.

Fintech Adoption and Financial Inclusion Among MSMEs

The development of fintech has expanded MSME access to formal financial services, including alternative financing, digital payments, and investment services (Gupta et al., 2022; Nugraha et al., 2022). At the macro level, fintech adoption has also been shown to be one of the main determinants of financial inclusion in developing countries (Usman, 2026). Nevertheless, the benefits of fintech for MSMEs cannot be separated from the digital literacy level of its users; MSMEs in regions with limited digital infrastructure and low digital literacy tend to face constraints in optimizing fintech utilization (Atta, 2025). In a study of Indonesian MSMEs, e-wallet use significantly predicted financial literacy and

financial performance, while financial literacy partially mediated the relationship between e-wallet use and performance (Munfaqiroh et al., 2026).

MSME Sustainability and Its Relationship with Digital Financial Literacy

SME sustainability refers to a business's ability to survive and grow economically over the long term amid market dynamics and technological change. Several studies show that DFL contributes to MSME sustainability through improved operational efficiency and financial risk management (Masdupi et al., 2025). Other studies have identified the mediating role of intervening variables, such as financial literacy mediating the effect of fintech on business sustainability (Winarsih et al., 2020), personal finance mediating the effect of digital financial capability (Djaniar et al., 2025), and digital payment mediating the effect of digital literacy on the sustainability of culinary businesses (Agustina et al., 2026). As related evidence on conventional financial literacy, an East Java MSME study reported direct effects of financial literacy and financial inclusion on business sustainability, as well as indirect effects through financial performance (Widyastuti et al., 2025). More broadly, Guandalini (2022) emphasized that digital transformation is one of the key levers for achieving business sustainability, underscoring the need for a systematic review to guide research directions on this issue.

The Gender Dimension in MSME Digital Financial Literacy

Several studies have also highlighted the gender dimension in relation to DFL and MSME sustainability. Fauzi et al. (2020) found that digital literacy significantly affects the growth of women-owned MSMEs in Indonesia, although women entrepreneurs' digital literacy levels are generally lower than those of men. Kurniasari and Lestari (2024) reinforced this finding by showing that fintech adoption mediates the effect of financial literacy on the performance of women-owned businesses. These findings indicate that the gender dimension is an important pathway explaining variation in MSME sustainability outcomes driven by DFL, and it is also identified as one of the emerging research directions in this study's bibliometric analysis.

Overall, the literature review above shows that the mechanism linking DFL and MSME sustainability is multidimensional and involves various mediating and moderating variables. Nevertheless, as will be shown in the results section, systematic mapping of the structure and trajectory of research on this topic remains rare, constituting the gap this study seeks to address.

RESEARCH METHOD

Research Design

This study employs a combined SLR and bibliometric analysis approach, as recommended for comprehensively mapping the knowledge structure of a research field (Donthu et al., 2021). The SLR approach follows the evidence-informed review methodological framework (Tranfield et al., 2003) as well as the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) reporting framework to ensure a transparent and replicable literature selection process (Page et al., 2021). Bibliometric analysis was conducted using VOSviewer software to map keyword co-occurrence relationships within the analyzed literature (Van Eck & Waltman, 2010).

Data Sources and Search Strategy

Data were collected using the Publish or Perish application, which retrieves data from the Google Scholar database. The search was conducted using a combination of the keywords "digital financial literacy," "SME/SMEs," and "sustainability," with publication years restricted to 2016–2026 in order to focus on developments in the field over the past decade while capturing the most recent research trends.

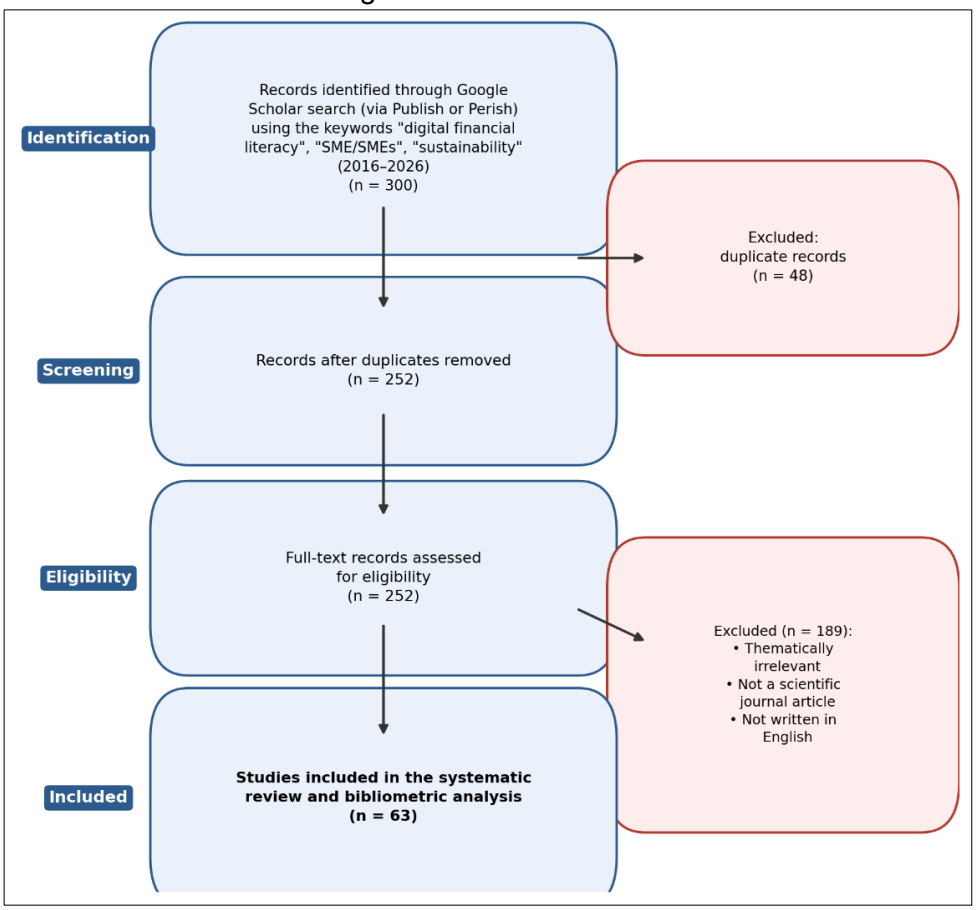
Inclusion and Exclusion Criteria

The inclusion criteria were: (1) scientific journal articles; (2) written in English; (3) addressing the relationship between DFL and MSMEs and/or business sustainability; and (4) available in full text. The exclusion criteria were: (1) conference proceedings, book chapters, editorials, or opinion pieces; (2) duplicate entries; and (3) thematically irrelevant articles following abstract or full-text screening.

Selection Procedure (PRISMA)

The following Figure 1 represents the flow diagram of PRISMA 2020.

Figure 1. PRISMA 2020 Flow Diagram



RESULTS

Thematic Structure (Network Visualization)

Co-occurrence analysis of keywords produced a network map divided into six main thematic clusters, as shown in Figure 2 and summarized in Table 1.

Figure 2. Network Visualization of Keywords from 63 Articles on Digital Financial Literacy and SME Sustainability (VOSviewer)

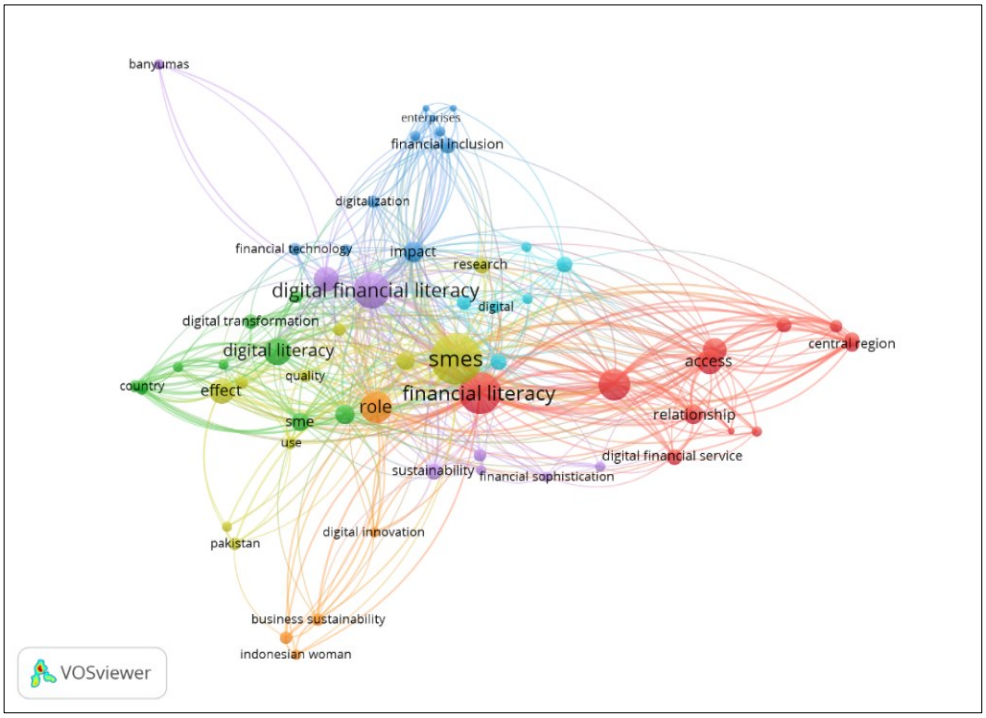


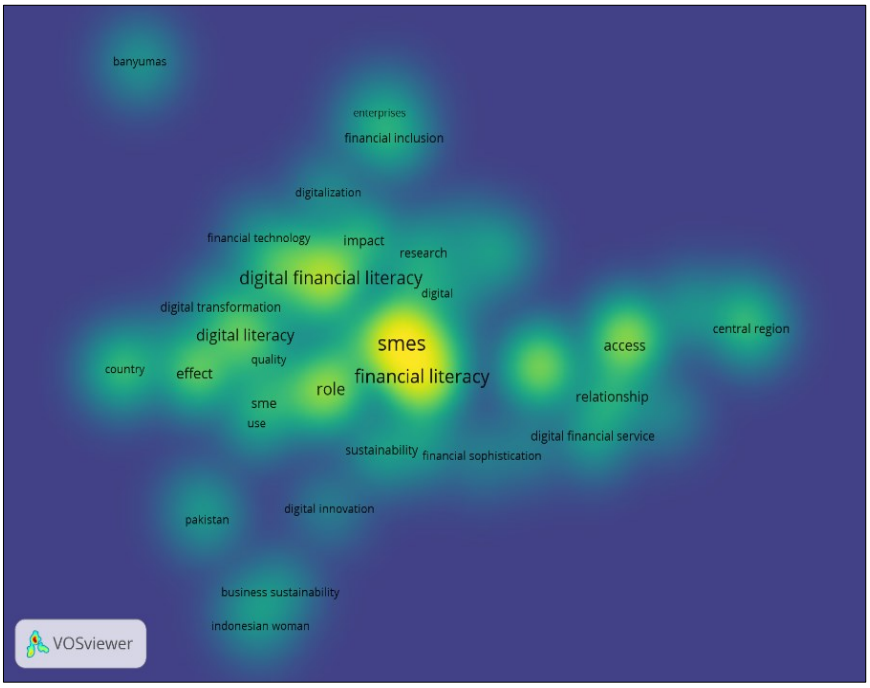
Table 1. Summary of Thematic Clusters From Network Visualization

Cluster (Color)	Dominant Keywords	Thematic Interpretation
Red	financial literacy, access, relationship, central region, digital financial service	Access to and Provision of Digital Financial Services for MSMEs
Blue	financial inclusion, enterprises, financial technology, digitalization	Financial Inclusion and the Role of Financial Technology
Purple	digital financial literacy, impact, sustainability, financial sophistication, Banyumas	Impact of Digital Financial Literacy on Business Sustainability
Green	digital literacy, digital transformation, country, effect, SME, use	Digital Transformation and Digital Literacy Among MSMEs
Yellow/Olive	SMEs, research, quality, Pakistan	Research Context and Quality of MSMEs in Developing Countries
Orange	role, business sustainability, Indonesian woman, digital innovation	The Role of Gender and Digital Innovation in Business Sustainability

The keywords "SMEs" and "financial literacy" appear as the largest nodes, indicating their central position as the main hubs connecting nearly all other clusters. This suggests that the majority of studies in the analyzed corpus build their argumentation from the basic relationship between financial literacy and MSME characteristics before extending toward more specific themes such as financial inclusion, digital transformation, and business sustainability.

Research Intensity and Topic Distribution (Density Visualization)
The density visualization presented in Figure 3 shows the areas that have been most extensively studied (bright yellow) and those that remain underexplored (dark blue).

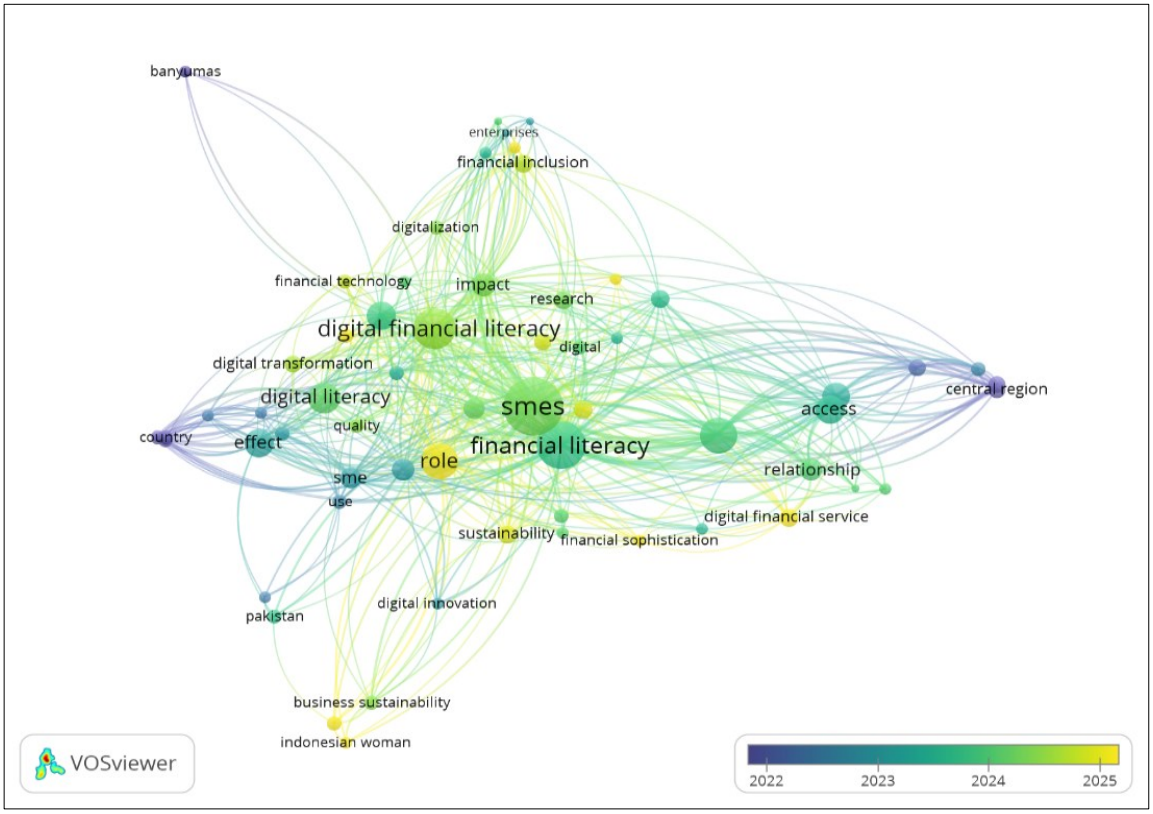
Figure 3. Density Visualization of Keywords in the Digital Financial Literacy and SME Sustainability Literature



The areas of highest intensity are centered on the keywords "SMEs" and "financial literacy," followed by "digital financial literacy," "digital literacy," "access," and "role." In contrast, keywords such as "Pakistan," "Indonesian woman," "central region," "business sustainability," and "digital financial service" are located in areas of low intensity. This indicates that the sustainability dimension linked to specific geographic and demographic contexts, including the gender perspective of business actors, remains an underexplored area and represents a potential research gap.

Research Trends (Overlay Visualization)
To address RQ3 concerning the shift in research focus over time, an overlay visualization analysis was conducted based on the average year of publication (Figure 4).

Figure 4. Overlay Visualization of Keywords in the Digital Financial Literacy and SME Sustainability Literature



Keywords dominated by purple-blue coloring (average publication year around 2022), such as "central region," "country," and "Pakistan," reflect an early research focus on case studies within specific regions or countries. Keywords with green-teal coloring (2023–2024), such as "digital financial literacy," "digital literacy," "SMEs," "financial literacy," "access," and "effect," represent core themes that have been consistently studied during the middle period. Keywords colored yellow (2024–2025), namely "financial inclusion," "sustainability," "financial sophistication," "digital financial service," "business sustainability," "Indonesian woman," "digital innovation," "role," "research," and "quality," indicate emerging research trends.

These findings suggest a shift in research focus from the basic relationship between DFL and MSME characteristics toward more complex and specific constructs, including financial sophistication, business sustainability explicitly, digital financial services, and the dimensions of gender and digital innovation.

DISCUSSION

The bibliometric analysis results show that the knowledge structure in the field of DFL and SME sustainability is formed through six interrelated thematic clusters, with financial literacy and MSME characteristics serving as the central node. This pattern is consistent with the nature of a still-developing body of literature, in which research typically begins with a direct relationship between two core constructs before progressing toward more nuanced inquiry.

The shift in research trends toward financial sophistication, business sustainability, and digital financial services during the 2024–2025 period indicates that researchers have begun moving beyond the direct relationship between DFL and MSME performance,

toward exploring more complex mechanisms—for example, through mediating variables such as access to financing or technology adoption, or moderating variables such as the demographic characteristics of business actors. This pattern is consistent with the findings from the 63 analyzed articles (see Appendix), in which studies from the 2024–2025 period were more likely to examine intervening variables compared with earlier studies, which more frequently tested direct relationships.

The emergence of the keyword "Indonesian woman" among recent trend clusters also indicates growing attention to the gender dimension in studies of DFL and MSME sustainability, particularly in the context of developing countries. However, based on the density visualization results, this topic remains at a relatively low research intensity, opening opportunities for further research that more deeply explores the context of gender and women's entrepreneurship.

Overall, the synthesis of the bibliometric results and the narrative review of the 63 articles shows that the DFL and SME sustainability literature remains dominated by studies of direct relationships and case studies within specific national or regional contexts, while research on mediating/moderating mechanisms, gender dimensions, and more specific types of digital financial services remains an area requiring further development.

CONCLUSION

This study maps the structure and research trends of DFL and SME sustainability through a PRISMA-based SLR approach combined with bibliometric analysis using VOSviewer on 63 articles meeting the inclusion criteria. The analysis identifies six main thematic clusters and a shift in research focus from the basic relationship between DFL and MSMEs toward more specific constructs, such as financial sophistication, business sustainability, and the gender dimension.

Future research is recommended to explore mediating and moderating mechanisms in the relationship between DFL and MSME sustainability, to expand research on gender and regional contexts that remain underexplored, and to consider using indexed databases such as Scopus or Web of Science to strengthen the generalizability of bibliometric findings.

LIMITATION

This study is limited by its reliance on data sourced from Google Scholar via Publish or Perish, which, despite its broad coverage, tends to be less curated than indexed databases such as Scopus or Web of Science. Therefore, the findings should be generalized with caution.

ACKNOWLEDGMENT

The authors acknowledge the researchers whose published work informed this SLR.

DECLARATION OF CONFLICTING INTERESTS

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this manuscript.

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