

Mapping the Digital Transformation of Microfinance Research: A Bibliometric Analysis

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Abstract

Digital transformation is fundamentally reshaping microfinance institutions worldwide, yet the cumulative evidence base on its effects remains fragmented across disciplinary and methodological boundaries. This study presents a bibliometric analysis of the multidimensional impact of digital transformation on microfinance research. Primary data were drawn from journal articles published between 2018 and 2024. An initial pool of 1,000 documents was retrieved, of which 562 articles were retained for analysis after applying predefined inclusion and exclusion criteria. Keyword co-occurrence analysis and descriptive statistics were used in VOSviewer to map the field's intellectual structure. The analysis identifies seven thematic clusters, revealing that institutional capacity, regulatory quality, digital infrastructure, and sociocultural context function as critical moderating conditions that determine whether digital transformation yields inclusive or exclusionary outcomes. The findings further indicate that the COVID-19 pandemic significantly accelerated digital adoption among microfinance institutions. Collectively, this bibliometric synthesis offers a replicable analytical framework to guide future evidence-building in digital microfinance research, while highlighting critical avenues for theoretical and empirical advancement in the field.

Keywords: Digital Evaluation, Microfinance Institution, Bibliometric Analysis, Covid19 and Fintech adoption, Sustainable micro-finance

Introduction

From its origins as a paper-based, branch-dependent operation, the microfinance sector has undergone fundamental reconfiguration driven by Financial Technology (FinTech) and broader digital transformation (Mushtaq & Bruneau, 2019; Pal et al., 2023). Digital transformation is not merely technological change; it is a comprehensive institutional shift that reshapes how financial services operate (Fersi et al., 2023; Krasonikolakis et al., 2023). This transformation extends beyond mere technology adoption; it entails fundamental changes in organizational culture, client interaction models, risk assessment methodologies, and regulatory compliance frameworks (Gomber et al., 2018). FinTech companies have emerged by offering agile, data-driven, and cost-efficient alternatives to traditional microfinance institutions. With the digital transformation of microfinance, service quality has improved, transaction costs have decreased, and operational efficiency has increased (Dorfleitner et al., 2022; Pal et al., 2023). Microfinance institutions (MFIs) have been providing financial services to low-income people outside the reach of traditional banking services (Maenuddin et al., 2023). The microcredit model of microfinance has made a significant contribution to poverty reduction and financial inclusion.

Digital adoption accelerated during the COVID-19 pandemic, compelling both consumers and institutions to shift toward contactless and digital service modalities (Ozili, 2020). During the COVID-19 pandemic, the importance of digital microfinance became clear as people were confined to their homes due to movement restrictions. In this digital transformation, various technologies are being integrated, such as agent banking, mobile banking, and blockchain-based lending platforms. In particular, agent banking plays an important role in providing financial services to rural and unbanked people (Sharif et al., 2024). Despite the benefits and progress of digital microfinance, the digital transformation of microfinance faces many challenges. These include low digital literacy among rural borrowers, inadequate telecommunications infrastructure, gender-based digital exclusion, and regulatory fragmentation (Aziz & Naima, 2021; Ahammed et al., 2024).

Akter et al. (2021) conducted a bibliometric analysis of the global microfinance literature, identifying poverty alleviation, group lending, and credit scoring as prominent sub-themes, with a growing emphasis on MFIs' financial performance. Benami & Carter (2021) demonstrated that digital technologies can reshape rural microfinance through innovations in savings, credit, and insurance, while also raising concerns about the need for financial literacy and trust-building. Few works have been systematically integrated

into the digital transformation literature—a gap that the present systematic bibliometric analysis aims to address through its thematic synthesis.

Despite the growing body of literature on digital transformation and financial inclusion in microfinance, reviews across disciplinary silos, geographic contexts, and methodological traditions are lacking. Systematic synthesis is needed to fill gaps in the field's thematic architecture and to identify convergent and divergent findings across studies, thereby generating policy-relevant recommendations. While digital transformation and microfinance have each attracted substantial independent scholarly attention, no prior study has conducted a comprehensive, systematic bibliometric review that specifically situates digital transformation within the microfinance context. Existing reviews either address digital finance broadly, without isolating microfinance institution-specific dynamics. This leaves a critical absence of synthesized, structured knowledge at the intersection of these two domains.

This review makes three distinct contributions to the field. First, by employing VOSviewer bibliometric mapping, the review ensures transparency and replicability, responding to calls for open science in systematic review methodology (Peters et al., 2020). Second, the review spans a particularly consequential period (2018–2024) that encompasses both the pre-pandemic growth of digital finance and the pandemic-induced acceleration of digital adoption. Third, the review adopts a deliberately inclusive approach to geographic coverage, encompassing studies from Sub-Saharan Africa, South Asia, Southeast Asia, Latin America, and transitional economies, thereby mitigating geographic bias.

Literature review

Digital transformation in microfinance is not merely a technological upgrade; it represents a fundamental reconfiguration of institutional processes, service delivery models, and client relationships (Fersi et al., 2023). Drawing on the resource-based view (RBV) of the firm, Dorfleitner et al. (2022) conceptualized MFI digital transformation as the integration of digital technologies across operational, social, and governance dimensions. Their findings empirically support the idea that MFIs offering digital solutions exhibited improved social performance and reduced transaction costs. Using stochastic frontier analysis on 387 MFIs across 2005–2019, Fersi et al. (2023) confirmed that FinTech adoption improved both operational efficiency and social inclusion metrics. Though benefits were unevenly distributed across institutions by size and geography. To understand how microfinance institutions can be digitized, researchers have employed several significant theories. Amin et al. (2024) used the Technology, Organization, and Environment (TOE) framework. Fersi et al. (2023) found that innovative

MFIs targeting disadvantaged groups exhibit higher social efficiency than non-innovative MFIs.

Despite having many advantages, the literature mentions several barriers. Among them, notable inequalities exist between rural and urban customers, with rural people using fewer digital devices, having less knowledge, and experiencing weaker internet connections. According to Moin and Kraiwanit (2023) and Alam and Forhad (2023), low digital literacy among rural residents is a major barrier to the digitalization of microfinance. According to Kandie and Islam (2022), digital microcredit can sometimes increase poverty due to short loan repayment periods and very high interest rates. A growing body of scholarly literature has examined various dimensions of digital microfinance. The existing literature also reflects a notable methodological imbalance. Taken together, these gaps indicate that while the individual building blocks of knowledge on digital microfinance exist in dispersed form, little work has been undertaken to systematically, transparently, and comprehensively synthesize the evidence base needed by researchers, practitioners, and policymakers.

Despite the growing body of research at the intersection of digital technology and microfinance, the literature lacks a comprehensive, systematic bibliometric review focused specifically on the digital transformation of microfinance institutions. Existing studies are temporally limited, failing to capture the transformative period spanning the COVID-19 pandemic (2018–2024), and methodologically constrained by reliance on narrative reviews that do not objectively map the field's intellectual evolution. Research on digital financial services and financial inclusion has surged since 2016, with growing interdisciplinary interest underscoring their significance. The pandemic period served as a critical accelerator of digital adoption in microfinance. One of the most severely impacted businesses during COVID-19 was microfinance institutions and their borrowers. (Fu, J., & Mishra, M., 2022). This study addresses these overlapping gaps by providing the first bibliometric synthesis of this domain, offering a structured, reproducible evidence base to guide future research and inform inclusive digital finance policy. By incorporating pre- and post-pandemic literature (2018–2024), this study captures a period of rapid institutional change that earlier reviews and thematic studies have not addressed.

Methodology

This study uses the bibliometric analysis as it is considered a quantitative research method for systematically collecting, managing, and analyzing bibliographic metadata from scientific publications, including citations, author affiliations, journal titles, publication years, and keywords (Callon et al., 1983; Van & Waltman, 2010; Aria & Cuccurullo, 2017). This

study is followed by a bibliometric co-occurrence analysis. The integration of qualitative synthesis with quantitative bibliometric methods has been validated as a robust approach for mapping emergent and rapidly evolving fields in management, finance, and development studies (Danthu et al., 2021). The data collection process used the Lens.org database to ensure the reliability and trustworthiness of the information.

This study uses VOSviewer, a freely available software program for constructing and viewing bibliometric maps (Van & Waltman, 2010). VOS (Visualization of Similarities) serves as a robust alternative to traditional multidimensional scaling (MDS), as VOS maps do not suffer from the artifacts that commonly afflict MDS-based approaches (Van & Waltman, 2010). The tool supports the construction of multiple network types, including co-occurrence, citation, and co-citation networks, based on bibliographic metadata based on title, authors, publication year, source title, abstract, author keywords, and citation counts, all of which were retained during data preparation.

Data Source and Search Strategy

The LENS.org scholarly database was selected as the primary data source due to its open-access architecture, broad interdisciplinary coverage, and integration of patent and scholarly metadata (Danthu et al., 2021; Visser et. al., 2021). A structured and systematic search strategy was employed to identify relevant studies on the digital transformation of microfinance. The required bibliographic data were collected from the Lens.org database, which provides extensive coverage of peer-reviewed academic publications.

Journal articles published between 2018 and 2024 were collected for this study. The selection of 2018 to 2024 as the temporal boundary for this bibliometric analysis is deliberate and grounded in several interconnected scholarly and contextual rationales. The six-year window is consistent with methodological standards in bibliometric research on rapidly evolving fields (Ha et al., 2025). Kim et al. (2018) focused on narrower periods, demonstrating the value of adopting a broader, more recent timeframe to ensure findings are up to date and relevant. Following preliminary searches and keyword refinement, the following search string was finalized:

TITLE-ABS-KEY ("digital transformation" OR "digitalization" OR "digital finance" OR fintech OR "financial technology")
AND
TITLE-ABS-KEY ("microfinance" OR "microcredit" OR "micro finance institution or MFI")

Table 1: Search string used in Lens.org

Lens.org	("digital transformation" OR "digitalization" OR "digital finance" OR fintech OR "financial technology") AND ("microfinance" OR "microcredit" OR "micro finance institution or MFI")
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A total of 1,000 documents were initially retrieved from Lens.org. To enhance the relevance and quality of the data, several screening procedures were conducted. The retrieved records were screened using predefined inclusion and exclusion criteria. Studies were included if they were peer-reviewed journal articles published in English and relevant to the research scope. Studies were excluded if they were duplicates, conference proceedings, book chapters, review notes, editorials, dissertations, non-English publications, or unrelated to the research objectives. The screening process involved database filtering and manual examination of titles, abstracts, and full texts to assess eligibility. The screening process for this bibliometric analysis followed the PRISMA 2020 framework developed by Page et. al. (2021).

The initial database search retrieved 1,000 records. Of these, 120 were identified as duplicates. The remaining 880 records were screened at the title/abstract level against two structural criteria: document type and language. This step excluded 143 records, 95 for not meeting the document-type criteria (e.g., conference abstracts, editorials, or non-peer-reviewed material) and 48 for not being published in English. The remaining 880 records were screened at the title/abstract level against two structural criteria: document type and language. This step excluded 143 records, 95 for not meeting the document-type criteria (e.g., conference abstracts, editorials, or non-peer-reviewed material) and 48 for not being published in English. This process yielded a final sample of 562 articles, which formed the dataset for the bibliometric analysis. The selected records were exported in CSV and plain text formats. Subsequently, VOSviewer was used to perform bibliometric mapping and visualization.

Table 2: Inclusion and Exclusion Criteria

Criterion	Inclusion	Exclusion
Language	English	Non-English
Time frame	2018-2024	Before 2018
Document type	Journal article	Conference paper, books, book chapters, reviews
Publication stage	Final	In press/early access
Data quality	Complete bibliographic records	Incomplete or duplicate records

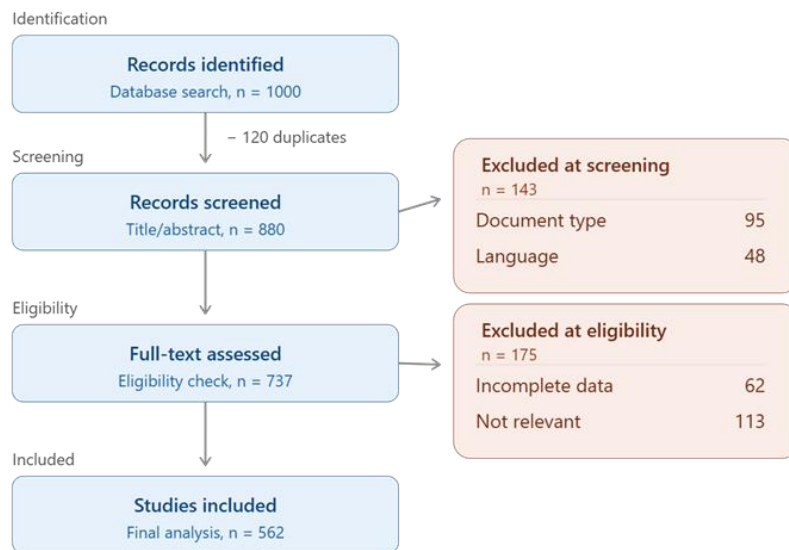


Figure 1: PRISMA Flow Diagram

Data Analysis Methods

The analytical phase of this bibliometric study followed a structured, methodical procedure comprising three sequential stages: data export from Lens.org, data preparation and cleaning, and network analysis using VOSviewer.

Keyword co-occurrence analysis is used as the primary method for visualizing the conceptual and intellectual structure of research on the digital transformation of microfinance institutions. The analysis type is set to *Co-occurrence*, with *Author Keywords* selected as the unit of analysis, consistent with established bibliometric practice (Van & Waltman, 2010). All items are positioned in a two-dimensional space. The weighted sum of squared distances between related items is minimized to ensure closely related keywords are grouped into the same cluster (Van & Waltman, 2023). To normalize co-occurrence frequencies and ensure comparability across keywords with varying occurrence rates, the association strength measure is applied (Van & Waltman, 2010).

Following the construction of each network keyword co-occurrence, citation, and co-citation, VOSviewer generated visual maps for interpretation. Items are displayed as labeled circles, with each circle's size reflecting its importance. The distance between two items indicates their degree of relatedness, with shorter distances reflecting stronger associations. Colors denote cluster membership, with each cluster representing a group of closely connected items that can be interpreted as a thematic subfield or intellectual

community. These visual representations were systematically analyzed to identify emerging research themes, dominant intellectual contributions, and knowledge gaps (Van & Waltman, 2010).

Results and Discussion

Figure 2 below presents the annual trend in publications on digital transformation in the microfinance sector from 2018 to 2024. The analysis clearly demonstrates a strong upward trajectory in research activity during the observed period, indicating rapidly growing academic and policymaking interest in this emerging research domain. The number of publications rose from 34 in 2018 to 47 in 2019, indicating the study's slow but continuous growth. But in 2020, the number of articles grew dramatically to 96, marking a crucial turning point. The increased demand for digital financial services in the post-COVID-19 era is a major contributor to this noteworthy growth.

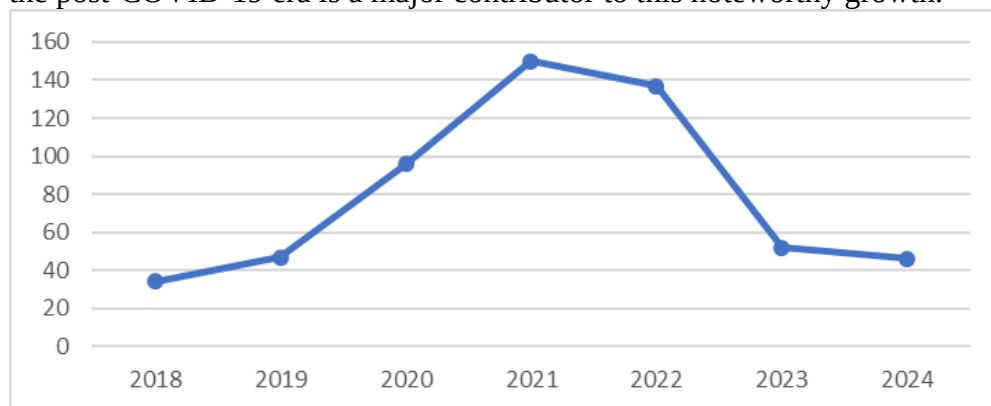


Figure 2: Annual Publication Trend on Digital Transformation in Microfinance (2018–2024)

Notably, the number of publications peaked in 2021 at 150, indicating the highest level of scholarly interest in this field worldwide. The number remained significantly higher than in previous years. Although the number of publications dropped to relatively low levels in 2023 and 2024, the overall trend remains encouraging. This indicates that research on digital MFIs is still growing. In the coming years, research and development in this field are anticipated to accelerate further with the development of mobile finance, digital payment infrastructures, artificial intelligence, and fintech-driven financial inclusion.

The distribution of research papers across domains of digital transformation in microfinance is shown in Figure 3. The size of each segment indicates the percentage of research articles relevant to that topic, and each color code corresponds to a different research domain.

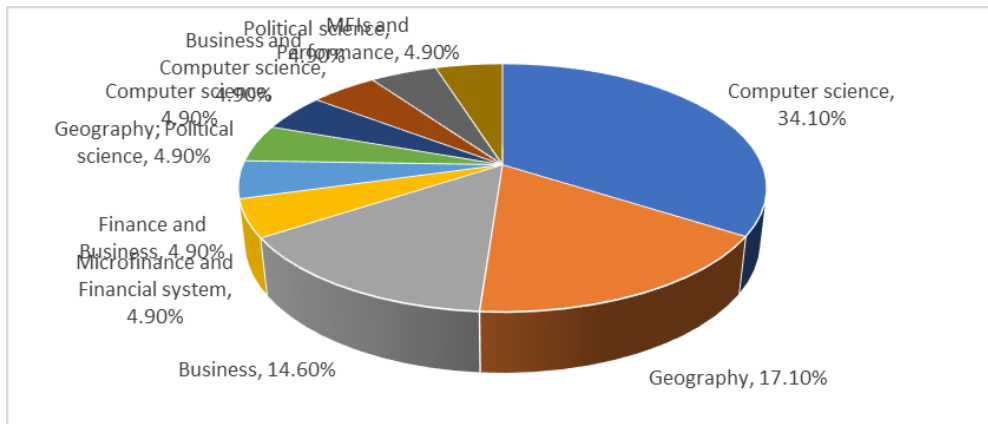


Figure 3: Documents by subject area

Based on the data presented in Figure 3, the main findings of the research on the digital transformation of microfinance are in Computer Science (34.10%). It is the most prevalent field. This suggests that technology is the main driver of microfinance's digital transformation. Web-based infrastructures, digital platforms, and data management systems remain crucial to this field of study. Geography and Business, with 17.10% and 14.60% of the total research output, is the second most important factor. This implies that location-based services, geographic accessibility, and regional context are crucial factors to consider when conducting research on digital microfinance.

A number of interdisciplinary fields, such as Business and Computer Science, Microfinance and Financing System, Computer Science, Geography and Political Science, Political Science, Development, Mathematical Analysis, and Finance and Business, each make up 5% of all publications. A substantial amount of the research output is represented by each of these. This distribution shows that the study of digital microfinance is a multifaceted topic that integrates viewpoints from technology, economics, policy-making, and development.

Keyword Co-occurrence Analysis

Keyword co-occurrence analysis is a quantitative research method for examining keywords and their basic characteristics, such as frequency and evolution. It is conducted by focusing on keywords. It becomes easier to explain each cluster's content clearly. In the network visualization map of VOSviewer, a node indicates a keyword, and the size of that node shows how many papers use that keyword. A larger node means the keyword is more popular. The link between two nodes indicates the relationship between the keywords. The keyword co-occurrence analysis was conducted with a

minimum occurrence threshold of 5, retaining only keywords appearing in at least 5 documents. This threshold yielded the 59 keywords presented in Table 3 across the seven clusters. Clustering was performed using VOSviewer's default modularity-based algorithm with a resolution parameter of 1.0, and link strength was calculated using the association strength normalization method.

Cluster 1: Technology and agricultural finance within microfinance

Within microfinance, Cluster 1, with 18 keywords, this cluster reflects the intersection of technological innovation, pandemic response, and sustainable agricultural finance as central concerns in microfinance research. This cluster encompasses Keywords such as *sustainability* (occurrence = 19), *sustainable development* (22), *Covid-19* (24), *blockchain* (16), *banking* (12), and *agricultural* (9), with an average publication year spanning from 2015 to 2022. The emergence of *blockchain* as a high-occurrence keyword (16 occurrences, with an average publication year of 2021) reflects growing scholarly attention to its transformative potential. Blockchain advances the applicability of microcredit institutions by improving operational efficiency and strengthening the governance of microcredit activities. *COVID-19* is the most frequently occurring keyword in this cluster (24 occurrences, average year 2021.70), underscoring how the pandemic fundamentally reshaped microfinance research priorities. The COVID-19 pandemic accelerated digitization and prompted digital financial inclusion. The co-occurrence of *resilience* (average: 2022.57) alongside pandemic-related terms signals that the post-COVID period has shifted focus toward institutional recovery and adaptive capacity.

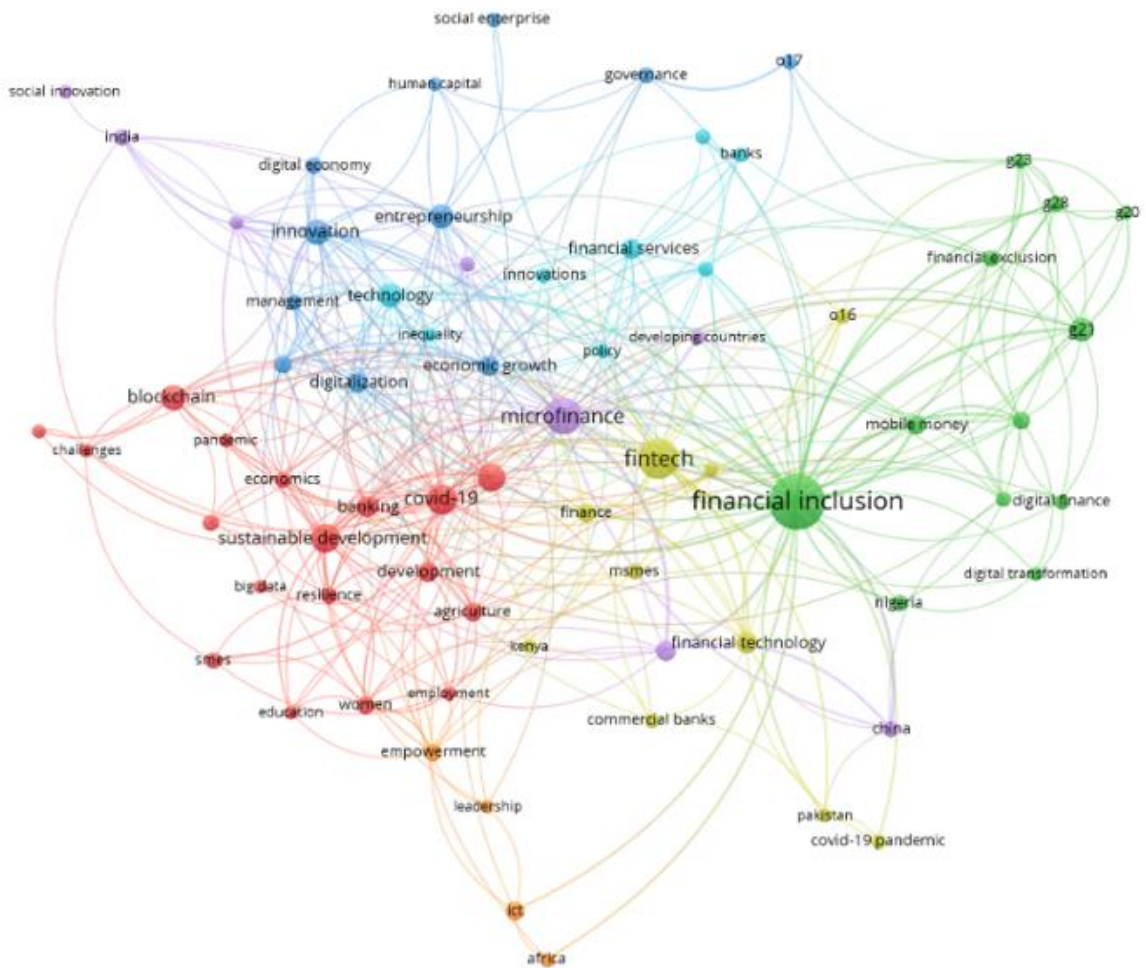


Figure 4: Network visualization of co-occurrence

Cluster 2: Digital finance systems and mobile banking

This cluster centers on the digitalization of financial access, with Financial Inclusion emerging as the most frequently occurring keyword in the entire table (occurrence = 75; links = 40; total link strength = 93; avg. year = 2020.20). This reflects the field's strong orientation toward reaching unbanked and underserved populations through digital channels. Bibliometric studies have identified digital money, fintech, and sustainability as emerging trends in financial inclusion research. Digital Financial Inclusion (occurrence = 6; avg. year = 2021.00) and Digital Finance (avg. year = 2021.33) are newer but well-connected terms, with an accelerating scholarly interest in technology-facilitated inclusion. Mobile Banking (occurrence = 8; avg. year = 2019.50) and Mobile Money (occurrence = 9; avg. year = 2019.67) indicate that mobile-first financial models laid the foundation for research before the term "digital

Cluster 3: The Impact of Digitalization on Microfinance and Business Development

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(occurrence = 8; avg. year = 2021.83) indicate a sustained interest in the macro-level consequences of digital microfinance. Digitalization (occurrence = 10; avg. year = 2021.67) and Digital Economy (avg. year = 2020.14) are more recent additions to the conversation, reflecting a conceptual broadening from specific tools to systemic economic transformation. Governance (avg. year = 2020.71), Management (avg. year = 2020.80), and Human Capital (avg. year = 2020.80) highlight the organizational infrastructure through which digitalization is deployed and managed within microfinance institutions.

Cluster 4: The Role of Financial Technology (FinTech) and Commercial Banks in Microfinance

Fintech dominates this cluster with the second-highest occurrence in the entire table (occurrence = 41; links = 27; total link strength = 49; avg. year = 2021.27). Analysis of the most recent papers reveals a surge in FinTech terminology, with FinTech accounting for 80 occurrences and an average publication year of 2018.84, alongside blockchain, another emerging topic. Financial Technology (occurrence = 12; avg. year = 2021.08) and Crowdfunding (avg. year = 2021.80) represent the broadening of alternative financing mechanisms beyond traditional banking. Co-occurrence analysis in digital finance for SMEs reveals a significant intellectual structure that reveals knowledge gaps, offering new opportunities for future research. Country-level terms Kenya (avg. year = 2020.20) and Pakistan (avg. year = 2021.60) point to the geographic concentration of FinTech-microfinance research in high-growth emerging markets, where mobile and digital financial infrastructure has expanded rapidly.

Cluster 5: Microfinance in Developing Countries and Corporate Social Responsibility (CSR)

Microfinance is the definitional anchor of this cluster and the third most frequently occurring term in the entire table (occurrence = 34; links = 31; total link strength = 50; avg. year = 2019.56). Mapping the research landscape of microfinance from 2018 to 2024 shows that, as a transformative financial tool for financial inclusion, it has attracted significant attention for its potential to empower rural populations and disadvantaged groups. Microcredit (occurrence = 10; total link strength = 19; avg. year = 2019.70) and Social Entrepreneurship (avg. year = 2018.67) capture the dual financial and social mandate of microfinance institutions. Corporate Social Responsibility (occurrence = 5; avg. year = 2019.25) adds a governance and accountability dimension, linking microfinance practice to broader corporate ethics discourse. Country keywords — India (avg. year = 2014.86), China (avg. year = 2020.00) — mark the geographic anchors of this research strand. Social Innovation (avg. year = 2018.80) and Developing Countries (avg. year

= 2018.40) are consistent with the mature trajectory of mainstream microfinance scholarship.

Cluster 6: Banking Services and Innovation

This cluster bridges technological innovation with service delivery, poverty reduction, and inequality. Technology (occurrence = 14; links = 17; total link strength = 26; avg. year = 2017.92) is the most-linked keyword. Inequality (occurrence = 5; links = 18; avg. year = 2021.25) has high connectivity despite low occurrence, indicating it is a cross-cutting concept that researchers increasingly use to frame access-to-finance debates. Poverty (occurrence = 6; avg. year = 2019.67) and Financial Service (occurrence = 11; avg. year = 2019.18) emphasize the redistributive function of banking and microfinance. Policy (avg. year = 2018.80) and Panel Data (avg. year = 2020.17) suggest quantitative empirical work to inform regulatory and programmatic decisions. The co-occurrence of Innovation (avg. year = 2020.67) and Banks (avg. year = 2020.00) within this cluster reflects research exploring how conventional financial institutions are adapting their service models.

Cluster 7: Empowerment and Leadership

The smallest and most focused cluster in the table, Cluster 7 centers on Empowerment (occurrence = 8; links = 13; total link strength = 15; avg. year = 2019.75) as its primary node, alongside ICT (occurrence = 9; avg. year = 2020.56) and Leadership (occurrence = 5; avg. year = 2020.20). This grouping captures the human and organizational dimensions of microfinance — particularly the empowerment of women and marginalized communities through information and communication technologies.

Table 3: Keywords for each cluster by link

Keyword	Links	Total link strength	occurrence	Avg.pub.year
Cluster 1: Technology and agricultural finance within microfinance				
Agricultural	16	18	9	2019.56
Artificial Intelligence	6	6	7	2021.43
Banking	12	16	12	2020.33
Blockchain	13	15	16	2021.19
Challenges	8	9	5	2021.80
Covid-19	28	39	24	2021.70
Development	15	18	11	2020.18
Employment	10	12	5	2022.20
Islamic Finance	3	4	5	2020.60
Pandemic	8	8	5	2021.00
Resilience	12	14	7	2022.57
SMEs	6	7	7	2021.57
Sustainability	18	18	19	2020.16

Sustainable Development	21	27	22	2019.77
Women	12	14	8	2019.88
Cluster 2: Digital finance systems and mobile banking				
Digital Finance	7	7	6	2021.33
Digital Financial Inclusion	9	10	6	2021.00
Digital Transformation	5	5	5	2021.60
Financial Exclusion	10	15	7	2019.29
Financial Inclusion	40	93	75	2020.20
Mobile Banking	14	18	8	2019.50
Mobile Money	8	13	9	2019.67
Nigeria	5	6	7	2021.00
Cluster 3: The impact of digitalization on microfinance and business development				
Digital Economy	8	8	7	2020.14
Digitalization	18	21	10	2021.67
Economic Development	15	18	8	2021.83
Economic Growth	17	21	11	2019.40
Entrepreneurship	19	21	15	2019.13
Governance	7	9	7	2020.71
Human Capital	6	6	5	2020.80
Innovation	19	29	16	2018.20
Management	14	17	6	2020.80
Cluster 4: The role of financial technology (FinTech) and commercial banks in microfinance				
Commercial Banks	6	6	6	2020.67
Covid-19 Pandemic	3	4	6	2021.17
Crowdfunding	6	8	5	2021.80
Finance	13	16	9	2019.21
Financial Technology	12	16	12	2021.08
Fintech	27	49	41	2021.27
Kenya	6	6	5	2020.20
MSMEs	6	7	7	2020.57
Pakistan	5	7	5	2021.60
Cluster 5: Focuses on microfinance in developing countries and its integration with corporate social responsibility (CSR)				
China	6	13	7	2020.00
Corporate social responsibility	13	14	5	2019.25
Developing Countries	5	5	5	2018.40
Microcredit	9	19	10	2019.70
Microfinance	31	50	34	2019.56
Social Entrepreneurship	8	8	6	2018.67
Social Innovation	1	1	5	2018.80
Cluster 6: Banking Services and Innovation				
Banks	6	8	6	2020.00
Financial Service	10	12	11	2019.18
Inequality	18	20	5	2021.25
Innovation	6	6	6	2020.67
Panel Data	5	6	6	2020.17

Policy	11	12	5	2018.80
Poverty	13	16	6	2019.67
Technology	17	26	14	2017.92
Cluster 7: Focuses on empowerment and leadership				
Empowerment	13	15	8	2019.75
ICT	5	6	9	2020.56
Leadership	5	5	5	2020.20

Taken together, the seven clusters reveal a research field in active transition — from traditional poverty-alleviation and microcredit paradigms (Clusters 5 and 6) toward technology-centered, policy-sensitive, and sustainability-driven frameworks (Clusters 1, 2, 3, and 4). The year with the highest productivity in digital financial services research was 2022, reflecting the broader trend in which the pandemic period accelerated both research interest and the adoption of digital financial tools. The recency of keywords like Employment (2022.20), Resilience (2022.57), Crowdfunding (2021.80), and Digital Transformation (2021.60) across multiple clusters underscores that pandemic-era disruptions and FinTech proliferation have substantially reoriented the field's research agenda.

Conclusion

This study synthesizes a substantial and rapidly growing body of scholarship on digital transformation in microfinance. The VOSviewer bibliometric analysis identified seven thematic clusters that together map the intellectual architecture of the field: technology and agricultural finance within microfinance; digital finance systems and mobile banking; digitalization and business development; fintech and commercial banks in microfinance; microfinance, developing countries, and corporate social responsibility; banking services and innovation; and empowerment and leadership research. The publication-year trend shows a clear shift toward more recent years, with most clusters spanning 2019–2022, suggesting that this field is undergoing active growth. The COVID-19 keyword (average publication year: 2021.70) indicates that the pandemic is a prominent research theme during this period. The comparatively high link strength of "Financial Inclusion" relative to other keywords suggests that it functions as a conceptual bridge connecting the seven clusters.

The evidence base indicates that digital transformation is frequently associated in the literature with financial inclusion, institutional efficiency, and client welfare across diverse geographic and socioeconomic contexts. Mobile money, fintech lending platforms, AI-based credit scoring, and blockchain-based transparency mechanisms emerge as recurring themes in the reviewed corpus, reflecting their growing prominence in digital microfinance research. The COVID-19 pandemic is frequently identified in the literature as

a catalyst for accelerated digital adoption among microfinance institutions. However, the evidence equally suggests that digital transformation is not uniformly portrayed as inclusive, equitable, or beneficial. Algorithmic bias, cybersecurity risks, data privacy violations, and predatory digital lending practices are recurrently discussed as emerging concerns warranting regulatory attention. Institutional capacity, regulatory quality, digital infrastructure, and sociocultural context are frequently identified in the literature as conditioning factors shaping the outcomes of digital transformation.

For microfinance institutions, investment in digital readiness is recommended as a strategic priority, supported by capacity building, technology governance, and digital literacy programming. For researchers, longitudinal, comparative, and interdisciplinary research designs are needed to generate more robust evidence on the pathways, conditions, and long-term implications of digital transformation in microfinance—evidence that a bibliometric approach, by design, cannot itself establish. Digital transformation appears to hold considerable potential for advancing microfinance and financial inclusion, as evidenced by the volume and direction of scholarly attention to the topic. This review aims to contribute to that collective endeavor by providing a comprehensive and rigorous synthesis of current knowledge and a clear articulation of the knowledge gaps warranting further empirical investigation.

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