

Digital Financial Knowledge: A Bibliometric and Conceptual Review

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ABSTRACT

Purpose:

Digital financial services have expanded rapidly, increasing scholarly interest in Digital Financial Literacy (DFL) as a key determinant of financial inclusion, behavioral outcomes, and participation in digital economies. Despite the growing body of literature, limited attention has been given to Digital Financial Knowledge (DFK) as a distinct conceptual component within the broader DFL framework. This study aims to examine the intellectual structure and thematic evolution of DFL research and to develop a clearer conceptual understanding of DFK through an integrated bibliometric and conceptual review.

Design/Methodology/Approach:

The study adopts a hybrid review methodology combining bibliometric analysis and qualitative conceptual synthesis. Bibliometric data were retrieved from the Web of Science Core Collection, resulting in a final dataset of 42 publications, and analyzed using the Bibliometrix package through the Biblioshiny interface in R. To complement the bibliometric findings, accessible full-text articles were retrieved through Emerald Insight and Google Scholar, and systematically reviewed using a structured conceptual coding framework to identify the key dimensions of Digital Financial Knowledge.

Findings:

The bibliometric analysis reveals significant growth and increasing interdisciplinary engagement in DFL research. Major research themes include financial inclusion, technology adoption, and financial behavioural outcomes. Although DFK does not appear as a standalone construct within the dominant literature, it is implicitly embedded within broader discussions of financial literacy. The conceptual synthesis identifies financial literacy, digital awareness, and risk awareness as core knowledge dimensions, while also highlighting inconsistencies in their definitions and measurement. Based on these findings, a more coherent conceptual framework of DFL is proposed, positioning DFK as a foundational component of digital financial literacy.

Research Limitations:

The bibliometric analysis was limited to publications indexed in the Web of Science Core Collection, while the conceptual synthesis was based on accessible full-text studies. Future research should validate the proposed framework across different databases, contexts, and populations and develop standardized measures of Digital Financial Knowledge.

Practical Implications:

By clarifying the conceptual foundations of Digital Financial Knowledge, the proposed framework offers valuable guidance for researchers, educators, policymakers, and financial institutions in designing digital financial education programs, developing robust measurement instruments, and promoting safe and effective participation in increasingly digital financial ecosystems.

Keywords: Digital Financial Knowledge, Digital Financial Literacy, Bibliometric Analysis, Conceptual Review, Financial Inclusion; Digital Finance

INTRODUCTION

The rapid use of digital financial technologies has changed the structure of the global financial system in significant ways. Mobile banking, digital payment systems, online lending, cryptocurrency markets, and finance that works with e-commerce have all changed how individuals and businesses access, manage, and invest their finances (Ravikumar et al., 2022a). As digital financial ecosystems grow, increasing amounts of study is focused on figuring out what skills people need to be able to navigate these systems safely and effectively. In this context, Digital Financial Literacy (DFL) has emerged as an essential concept in finance, economics, consumer behaviour, development studies, and sustainability studies.

Recent empirical research underscores the expanding significance of Digital Financial Literacy (DFL) across a wide range of socioeconomic outcomes. Studies associate DFL with improved financial well-being and reduced financial stress (Choung et al., 2023); (S. A. Bhat et al., 2025b) enhanced financial inclusion and access to formal financial services (Kamble et al., 2024; Zaimovic et al., 2025) and improved employment quality among urban populations (Ma & Cao, 2025). In rural and developing market contexts, DFL has been associated with increases in household income and decreases in income disparity (Xu et al., 2024). More recently, research has extended DFL into domains such as sustainable finance (Mazzoli & Baiocco, 2025) and corporate governance (Fan et al., 2025) demonstrating its conceptual flexibility.

During this development, a fundamental analytical issue has received inadequate attention: the role and definition of Digital Financial Knowledge (DFK) within the broader Digital Financial Literacy (DFL) framework. Several empirical models clearly define digital financial knowledge as an independent variable influencing behavioural outcomes (S. A. Bhat et al., 2025a; Zaimovic, 2026), other studies integrate knowledge within comprehensive frameworks of literacy, capability, or behaviour (Kumar, 2023; Setiawan et al., 2022). DFK is sometimes considered a cognitive mechanism that mediates the relationship between digital access and financial inclusion (Zaimovic, 2026), whereas in other instances, it is incorporated into combined indicators of literacy or capability (Choung et al., 2023) This conceptual mobility raises questions about construct clarity, dimensional bounds, and measurement accuracy.

When knowledge, skills, behavioural execution, and contextual elements are not distinctly articulated, measurement boundaries may become less clear in order to contribute to definitions of DFK. In response to this gap, the present study undertakes a hybrid bibliometric and conceptual review of DFL research, with a specific focus on clarifying the position of DFK within the field. First, a bibliometric analysis of Web of Science-indexed publications is conducted to map the intellectual structure, thematic evolution, and dominant research clusters shaping DFL research. The dataset indicates a clear upward trajectory in publication activity, accompanied by diversification into areas such as sustainability, entrepreneurship, financial inclusion, and behavioural finance. Second, a structured conceptual synthesis is employed to investigate the definitions, operationalizations, and integrations of DFK within established frameworks. This approach allows for a more comprehensive understanding of how DFK interacts with existing models.

This research presents three main contributions. This study offers a systematic bibliometric analysis of the expanding DFL literature, highlighting essential journals, thematic clusters, and outcome domains. Secondly, it enhances conceptual clarity by analysing the recurring cognitive and digital elements related to DFK. Third, it presents a comprehensive, multidimensional definition of DFK that clarifies its distinctions from DFL while ensuring theoretical consistency between the constructs. The study enhances digital financial research by integrating quantitative mapping with qualitative synthesis, thereby establishing a more robust conceptual foundation for future empirical research, scale development, and policy formulation in digitally mediated financial contexts.

The remainder of the paper is organized as follows. Section 2 outlines the bibliometric and conceptual review methodology. Section 3 presents the results of the bibliometric analysis. Section 4 develops the conceptual synthesis and advances a consolidated definition of Digital Financial Knowledge. Final section discusses theoretical and research implications with limitations and directions for future research.

REVIEW DESIGN AND METHODOLOGY

Review Design

This study adopts a bibliometric and conceptual review approach to thoroughly examine the emerging area of Digital Financial Knowledge (DFK). Bibliometric analysis is particularly suited for synthesising large volumes of scientific literature, enabling the identification of intellectual structures, research trends, and thematic evolution within the field (Donthu et al., 2021). It offers a thorough and clear scientific framework for analysing scholarly output through quantitative tools, thereby minimising the subjectivity generally linked to traditional narrative reviews.

A structured two-stage review approach is used for this study, which combines bibliometric analysis with conceptual synthesis. Not only do we want to look at how Digital Financial Literacy (DFL) study is organised intellectually, but we also want to see how Digital Financial Knowledge (DFK) is defined and placed in the larger body of literature. Even though bibliometric methods make it easy to find publication trends, important journals, and thematic groups, they do not fully clear up conceptual ambiguities. So, a complementary qualitative synthesis is used to look at trends in definitions, areas of conceptual fragmentation, and areas where dimensions come together.

The integration of performance analysis and science mapping allows the study to move beyond descriptive trend analysis toward theory refinement. Specifically, bibliometric mapping provides an empirical basis for identifying dominant research streams, whereas the conceptual synthesis clarifies the cognitive framework supporting DFK and distinguishes it from broader literacy and capability constructs.

Data Source and Search Strategy

The bibliometric dataset was retrieved from the Web of Science Core Collection. The Web of Science database was selected because of rigorous indexing standards, high quality meta data, and widespread use in bibliometric research. A Topic Search (TS) was conducted using the Boolean search string: TS = (“digital financial literacy” OR “digital financial knowledge” OR “digital finance knowledge”). The search was limited to Articles and Review Articles indexed in the Science Citation Expanded (SCI-Expanded) and the Social Sciences Citation Index (SSCI). Only publications written in English were included. The initial search retrieved 44 records. After applying the screening criteria and excluding two records that did not meet the inclusion criteria, the final dataset comprised 42 publications

Data Analysis

Bibliometric analysis was conducted using the Bibliometrix package through the Biblioshiny web interface in R. The analyses comprised both performance analysis and science mapping. Performance analysis included annual scientific production, source analysis, author productivity, country productivity, citation analysis, and document analysis. Science mapping techniques included keyword co-occurrence analysis, thematic mapping, thematic evolution, three-field plots, collaboration analysis, and conceptual structure analysis. The analyses were performed using the analytical procedures available in Biblioshiny. Since the dataset comprised 42 publications, no additional manual preprocessing of keywords or customized threshold values was applied unless otherwise specified. The resulting visualizations were interpreted to identify research trends, thematic structures, and conceptual relationships within the Digital Financial Knowledge literature. The analytical settings available in Biblioshiny were adopted to generate the bibliometric networks and thematic visualizations. Given the relatively small dataset ($n = 42$), default analytical settings were considered appropriate to preserve the complete conceptual structure of the literature.

To enhance methodological transparency and ensure a systematic study selection process, the PRISMA 2020 flow diagram was adopted to illustrate the identification, screening, eligibility assessment, and inclusion of publications considered for the bibliometric and conceptual review. Although PRISMA is primarily associated with systematic reviews, its structured reporting framework improves the reproducibility and transparency of literature selection in bibliometric studies.

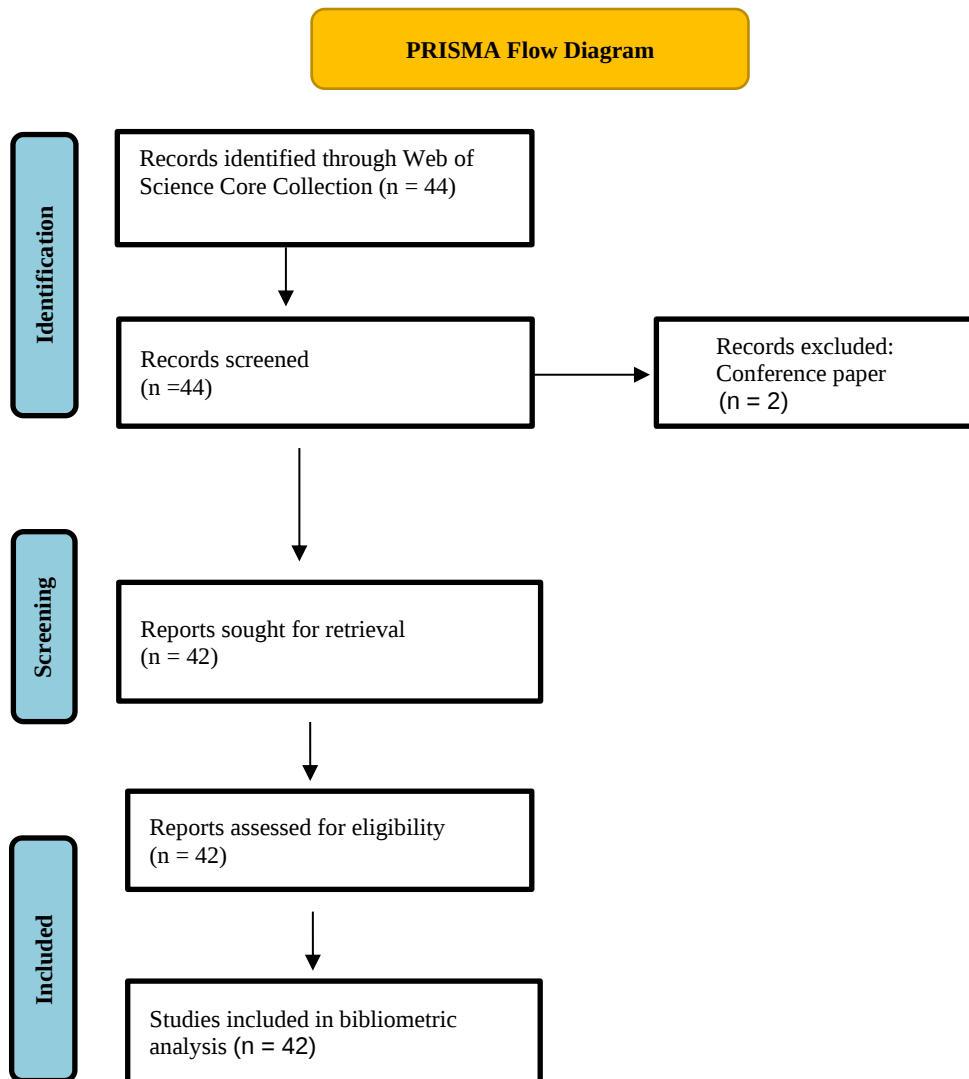


Figure 1. PRISMA flow diagram illustrating the identification, screening, eligibility assessment, and inclusion of studies for the bibliometric analysis

Conceptual synthesis Procedure

Following the bibliometric analysis, a qualitative conceptual synthesis was undertaken to examine how Digital Financial Knowledge (DFK) has been conceptualized in the literature. While the bibliometric analysis was conducted on the final dataset of 42 publications retrieved from the Web of Science Core Collection, the conceptual synthesis was based on the 22 full-text articles that were accessible for detailed examination. Full-text articles were retrieved through institutional access and academic search platforms, including Emerald Insight and Google Scholar, wherever available.

A structured data extraction framework was developed to systematically review the selected full-text studies. For each article, information relating to the terminology used, conceptual definitions, knowledge elements, digital elements, risk and cybersecurity aspects, skills components, contextual information, and conceptual observations was extracted and recorded. The extracted information was then compared across studies to identify recurring concepts and thematic patterns.

Through an iterative process of comparison and thematic grouping, conceptually similar elements were synthesized into broader categories based on their underlying meanings rather than differences in terminology. This process resulted in the identification of four recurring dimensions of Digital Financial Knowledge, namely Cognitive Financial Knowledge, Digital Awareness, Risk and Cybersecurity Understanding, and Digital Knowledge, which form the conceptual framework proposed in this study.

Table1: Conceptual Coding Framework Used for the Qualitative Synthesis

Coding Category	Description
Terminology Used	Terms used by the study (e.g., Digital Financial Knowledge, Digital Financial Literacy, Digital Knowledge).
Conceptual Definition	Definition or conceptualization provided for the construct.
Knowledge Elements	Financial knowledge components discussed in the study.
Digital Elements	Digital finance, platforms, technologies, or digital service components addressed.
Risk and Cybersecurity Elements	Concepts relating to fraud awareness, cybersecurity, privacy, and risk management.
Skills Elements	Digital operational skills or competencies associated with financial activities.

The coding framework was developed to ensure consistency during the conceptual review. Each accessible full-text article was examined using these coding categories, enabling systematic comparison of conceptual similarities and differences across the literature. The coded information formed the basis for identifying recurring themes and developing the proposed dimensions of Digital Financial Knowledge.

Bibliometric Analysis Procedures

Following established bibliometric frameworks (Donthu et al., 2021) this study employs both performance analysis and science mapping techniques. Prior to analysis, the bibliographic records were examined for completeness and consistency. Author keywords and Keywords Plus were standardized by merging synonymous terms where appropriate (e.g., singular and plural forms) to improve consistency in the network analysis. Bibliometric networks were generated using the association strength normalization method available in Bibliometrix/Biblioshiny. Default clustering parameters implemented within the software were applied to identify thematic structures and keyword clusters.

Performance Analysis

Performance analysis examined a range of significant aspects of research output, such as how many papers were published each year and which journals were used. It also examined thoroughly at citation counts on both a regional and a global level to learn more about the academic work's status and reach. Another aspect that was studied was the geographic distribution of research, which showed where the study was done and how it influences respective fields. The research also found that financial inclusion, well-being, and sustainability were the most important outcome domains. This thorough evaluation made it possible to see that Digital financial literacy research had a wide range of themes, which helped to create an empirical basis for better conceptual understanding.

Conceptual Synthesis and Coding Procedure

Following bibliometric mapping, a structured conceptual synthesis was conducted. After bibliometric mapping, a conceptual synthesis of 42 articles was conducted, with an emphasis on three analytical dimensions: Construct Positioning, which analyses the differentiated treatment of Digital Financial Knowledge (DFK) alongside Digital Financial Literacy (DFL) and the integration of knowledge within literacy; Dimensional Architecture, which includes cognitive, procedural, behavioural, and attitudinal components; and Measurement Strategy, which consists of objective knowledge assessments, self-evaluated literacy, and composite capability indices. This structured coding enabled identification of recurring patterns, including construct inflation, dimensional overlap, and measurement redundancy. Particular attention was paid to studies isolating digital financial knowledge as a mediating or foundational cognitive component. The synthesis ultimately informed the development of a consolidated, multi-dimensional definition of Digital Financial Knowledge presented in Section 4.

Research Questions

The methodology followed three research questions:

RQ1: What are the publication and thematic trends in Digital Financial Literacy research?

RQ2: How does literature define digital financial knowledge?

RQ3: What is the theoretical definition of DFK within DFL?

Data Collection and Selection Process

The dataset was modified by removing non-journal publications to assure data quality and relevance. Three conference papers were specifically excluded, leaving a final dataset of 42 peer-reviewed journal publications. Due to the targeted search approach and the application of database-level filters (such as subject categories, document type, and language), no more records were eliminated during the screening phase. The selected papers were considered appropriate for bibliometric analysis as they directly address digital financial constructs within the wider framework of digital financial literacy. The resulting dataset was exported in a suitable format and examined using the Bibliometrics software program in R (Biblioshiny interface), providing performance analysis and science mapping.

BIBLIOMETRIC RESULTS

Overview of the Dataset

This section outlines the bibliometric mapping of Digital Financial Knowledge research based on metadata obtained from the Web of Science Core Collection. In reference to the search technique outlined in Section 2, a final dataset has 42 peer-reviewed articles that were published between 2021 and 2026. The data set includes work from 141 authors from 27 academic sources. This shows that the journals are not too far out and that an extensive number of contributors are involved in the research. The literature shows a lot of collaboration, with an average of 3.52 co-authors per document and 40.48% of publications having international collaboration. This means that the Digital Financial Literacy study is not limited to one area, but is part of a global academic network. The average citation count per document is 27.83, which shows that the field is quite important in both academia and policy. This is because the documents are only 1.98 years old. The dataset has 2,217 cited references, which shows how strong the theoretical basis is for current Digital Financial Literacy research. The annual growth rate of 8.45% shows that the field is steadily developing, which shows how important digital financial literacy has grown in current financial systems.

Table 2: Main Information About the Dataset

Timespan  2021:2026	Sources  27	Documents  42	Annual Growth Rate  8.45 %
Authors  141	Authors of single-authorship  3	International Co-Authorship  40.48 %	Co-Authors per Doc  3.52
Author's Keywords (DE)  160	References  2217	Document Average Age  1.98	Average citations per doc  27.83

Sources: Compiled by the authors using Bibliometrix/Biblioshiny

Scientific Production and Performance Analysis

Annual Scientific Production

The annual scientific production of Digital Financial Literacy research shows a clear and consistent upward trajectory over the study period. As shown in Figure 1, the number of publications increased progressively from 2 articles in 2021 to 17 articles in 2025, indicating a substantial expansion in scholarly attention toward digitally mediated financial capability.

The growth pattern can be broadly divided into two phases. The initial phase (2021–2022) reflects a developing stage, with relatively limited publication output. This is followed by a consolidation phase (2023–2024), during which the number of studies increases steadily, suggesting growing recognition of the field. The most notable surge occurs in 2025, where publication output rises sharply, marking a transition into a rapid expansion phase.

Overall, the observed trend indicates that Digital Financial knowledge has evolved from an emerging topic into a rapidly developing research domain. This expansion aligns with the increasing global adoption of digital financial services, the proliferation of fintech innovations, and policy emphasis on financial inclusion in digitally transforming economies.

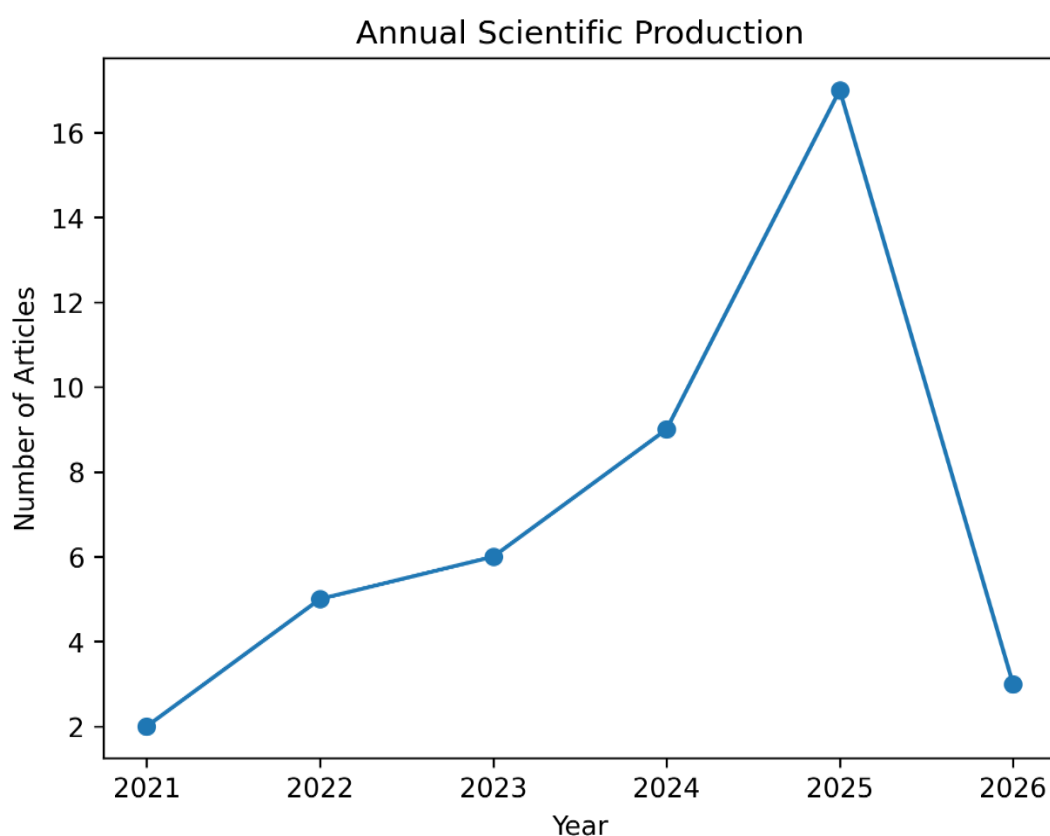


Figure 2. Annual Scientific Production of Digital Financial Knowledge Research (2021-2016)

Sources: Compiled by the authors using Bibliometrix/Biblioshiny

Country Scientific Production

The geographical distribution of scientific production in digital financial knowledge reveals significant disparities, predominantly concentrated in a select number of countries, particularly emerging and developed economies. China leads the field with an impressive 32 publications, underscoring the nation's rapid digital transformation and strategic policies promoting financial technologies and digital financial inclusion. The United States trails with 10 publications, reflecting ongoing academic engagement in technological innovation and behavioural finance related to digital finance.

Following closely is India with 9 publications, illustrating an increasing scholarly interest in digital financial inclusion within emerging markets, notably via the proliferation of mobile payment systems and government driven digital initiatives. Other notable contributors include South Korea (8 publications) and the United Kingdom (6 publications), both recognized for their advanced technology and robust digital financial infrastructures. Italy (5 publications) and Finland (3 publications) further signify the growing academic focus on digital finance in Europe. Additionally, nations like Indonesia (4 publications), Malaysia (3 publications), and Australia (3 publications) underscore the rising significance of digital financial literacy research throughout the Asia-Pacific region. The involvement of these countries highlights the crucial role of developing digital financial capabilities in economies where enhancing financial inclusion remains a pivotal policy objective.

Country Scientific Production

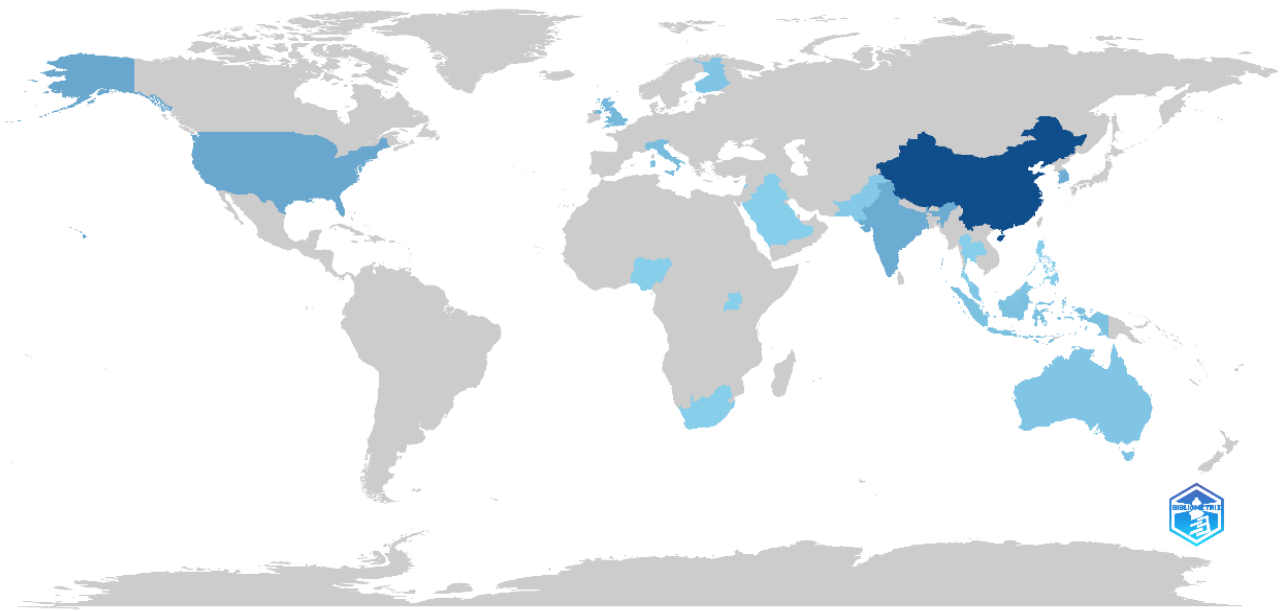


Figure 3. Country Scientific of Digital Financial Knowledge Research

Sources: Compiled by the authors using Bibliometrix/Biblioshiny

Table 3: Top Contributing Countries

Country	Publications
China	32
United States	10
India	9
South Korea	8
United Kingdom	6
Italy	5
Indonesia	4
Australia	3
Finland	3
Malaysia	3

Sources: Compiled by the authors using Bibliometrix/Biblioshiny

Table 3, presents the ten most productive countries contributing to Digital Financial Literacy research. China recorded the highest scientific output (32 publications), followed by the United States (10), India (9), and South Korea (8). The country productivity analysis was generated using the default full-counting procedure in

Bibliometrix/Biblioshiny, whereby internationally co-authored publications are attributed to each participating country. Consequently, the aggregate number of country publications exceeds the total number of documents included in the review ($n = 42$). This distribution indicates that DFL research is concentrated in a relatively small group of countries, with China emerging as the dominant contributor.

Country productivity was generated using the default country attribution procedure in Bibliometrix/Biblioshiny. Publications were assigned to each author-affiliated country (full counting); therefore, internationally co-authored publications contribute to multiple countries, and the sum of country publications exceeds the total number of documents ($n = 42$).

Most Relevant Sources

The distribution of publications across sources indicates a moderately dispersed research landscape, with no single journal dominating the field. The most productive outlets include *Finance Research Letters* and the *International Journal of Bank Marketing*, each contributing four articles, followed by *Heliyon*, *SAGE Open*, and *Sustainability*, each with three publications. This pattern reflects the interdisciplinary nature of Digital Financial Literacy research, which spans the domains of finance, marketing, behavioural sciences, and sustainability. The presence of journals such as *Behavioural Sciences* and *Acta Psychologica*. Further highlights the integration of psychological and behavioural perspectives into digital finance research. Overall, the absence of a highly concentrated publication outlet suggests that the field is still evolving and has not yet consolidated within a specialized journal, reinforcing its emerging and cross-disciplinary character.

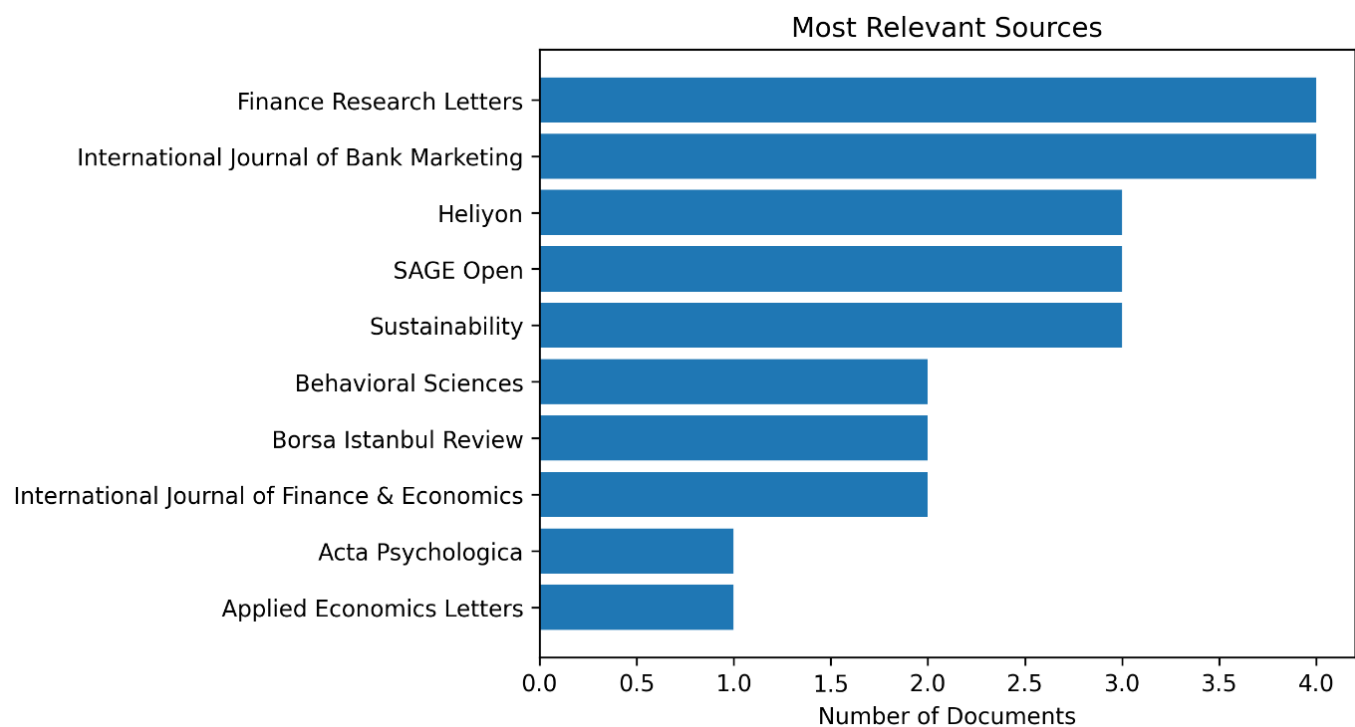


Figure 4. Most Relevant Sources

Sources: Compiled by the authors using Bibliometrix/Biblioshiny

Conceptual Structure of Literature

Keyword Co-occurrence Analysis

The keyword co-occurrence analysis reveals the conceptual structure of the Digital Financial Literacy (DFL) literature, identifying digital financial literacy as the most central theme, evidenced by its highest betweenness centrality (323.309) and PageRank score (0.143). The keyword co-occurrence network identifies digital financial literacy as the most influential keyword, acting as the principal bridge connecting multiple thematic

clusters within the literature. Similarly, financial literacy occupies a central position in the network, highlighting its continued importance as the conceptual foundation of digital financial research. The network analysis identifies key themes in digital finance, focusing on digital financial capability, inclusion, and adoption, which emphasize the access to and use of digital services. The term 'consumers' indicates a behavioral perspective, highlighting user engagement with platforms. However, Digital Financial Knowledge (DFK) is notably absent as a distinct term, suggesting it is integrated within broader ideas like digital financial literacy and capability. This supports the view that DFK is conceptually overshadowed in current research. Overall, the analysis underscores digital financial literacy as the main concept, closely linked to financial inclusion, adoption behavior, and digital capability, incorporating behavioral and contextual factors.

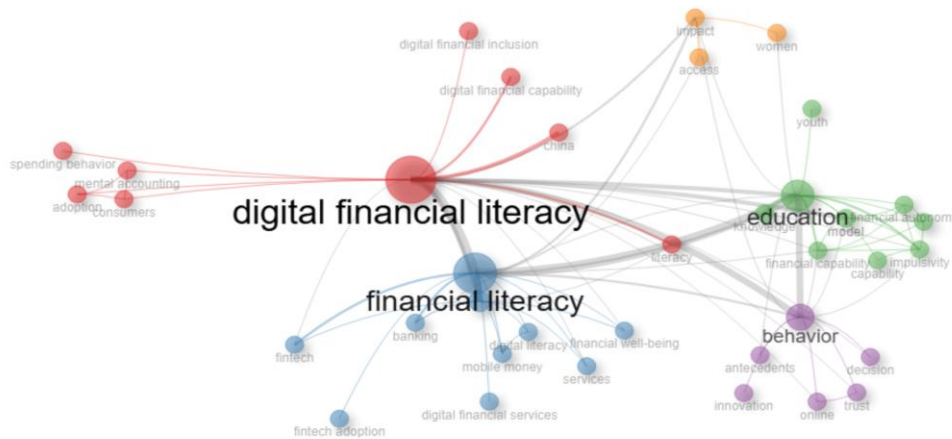


Figure 5. Keyword Co-occurrence Analysis

Sources: Compiled by the authors using Bibliometrix/Biblioshiny

Table 4: Most frequent key words

Keyword	Frequency
Digital Financial Literacy	23
Financial Literacy	18
Education	10
Behaviour	8
Financial Inclusion	7
Impact	5
Model	5
Banking	4
China	4
Financial Capability	4

Sources: Compiled by the authors using Bibliometrix/Biblioshiny

Table 4 presents the most frequently occurring keywords identified in the retrieved literature. Digital Financial Literacy (23 occurrences) emerged as the dominant research theme, followed by Financial Literacy (18), Education (10), Behaviour (8), and Financial Inclusion (7). The keyword frequency distribution corroborates the findings of the keyword co-occurrence network and thematic map, highlighting the dominance of digital financial literacy and its close association with financial education, behavioural outcomes, and financial inclusion. It is observed that Digital Financial Knowledge did not emerge as an independent high-frequency keyword, reinforcing the conceptual fragmentation identified in the literature.

Thematic Map Analysis

The thematic map positions research themes according to their centrality (relevance to the overall research field) and density (degree of internal development). Based on these two dimensions, themes are classified into four quadrants: Motor Themes (high centrality and high density), Basic Themes (high centrality and low density), Niche Themes (low centrality and high density), and Emerging or Declining Themes (low centrality and low density).

The Motor Themes comprise model, financial capability, literacy, behaviour, digital finance, antecedents, financial inclusion, banking, and financial well-being. Their position in the upper-right quadrant indicates that these themes are both well-developed and highly connected to the broader Digital Financial Literacy literature, reflecting their central role in advancing theoretical and empirical research. The Basic Themes include education, knowledge, and digital financial capability. These themes exhibit high centrality but comparatively lower density, suggesting that they form the conceptual foundation of the field while continuing to evolve through ongoing research. The Niche Themes consist of digital financial literacy, China, and adoption. Although these themes demonstrate strong internal cohesion, their relatively lower centrality indicates that they represent specialized research streams with limited interaction across the wider literature. The Emerging or Declining Themes include access, investment, performance, impact, digital financial inclusion, financial literacy, fintech, and digital financial services. Their location in the lower-left quadrant suggests that these topics are either emerging areas of investigation or themes that have not yet achieved strong conceptual integration within the field.

It can be seen that Digital Financial Knowledge (DFK) does not emerge as an independent thematic cluster. Instead, knowledge-related concepts are embedded within broader themes such as education, financial capability, and digital financial literacy. This finding supports the argument that DFK remains conceptually fragmented in the existing literature and reinforces the need for a distinct conceptual framework that clearly defines Digital Financial Knowledge as an independent construct.

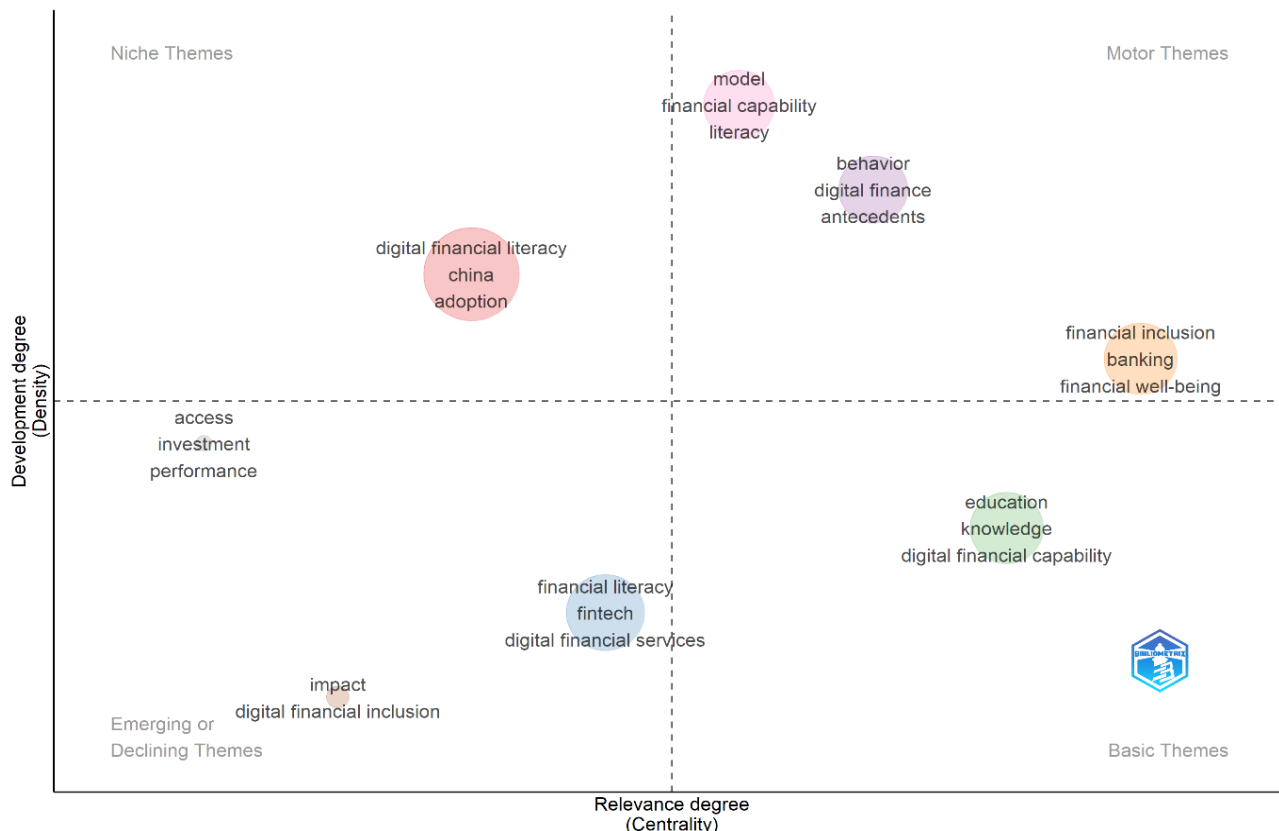


Figure 6. Thematic Map

Sources: Compiled by the authors using Bibliometrix/Biblioshiny

Conceptual Insights

The bibliometric analysis provides substantial information regarding the positioning of Digital Financial Knowledge (DFK) within the research landscape. The term DFK is not explicitly presented as a separate keyword or thematic area; rather, it is inferred within more expansive frameworks such as digital financial literacy, financial literacy, and education. This indicates that DFK is not regarded as a standalone term in the literature; rather, it is incorporated within the multidimensional framework of Digital Financial Literacy (DFL), where cognitive knowledge is intertwined with behavioural, attitudinal, and technological dimensions. Digital financial literacy is the most important idea in this subject since it is so central and common in the analysis.

The co-occurrence network also points to a concentration on applied research topics like financial inclusion, adoption, and consumer behaviour, where knowledge is more of a supporting element than a separate category of analytics. This indicates a significant deficiency; although knowledge is recognised as vital for digital financial inclusion, it does not consist of well-defined theoretical parameters and practical application. The results highlight the necessity to separate and redefine Digital Financial Knowledge as a unique construct to improve its clarity and relevance within the study domain.

Intellectual Structure

Co-citation Analysis

A key finding from the co-citation network is a lack of a distinct intellectual cluster focused on Digital Financial Knowledge (DFK). The current literature predominantly focuses on general financial literacy, with limited adaption to digital environments. This indicates that DFK has not yet developed into a distinct theoretical field of study, remaining associated with broader literacy frameworks. The research framework indicates a dependence on traditional financial literacy theories, although current research efforts are beginning to integrate digital components, highlighting a rapidly expanding but evolving domain where terms of Digital Financial Knowledge are not fully established.

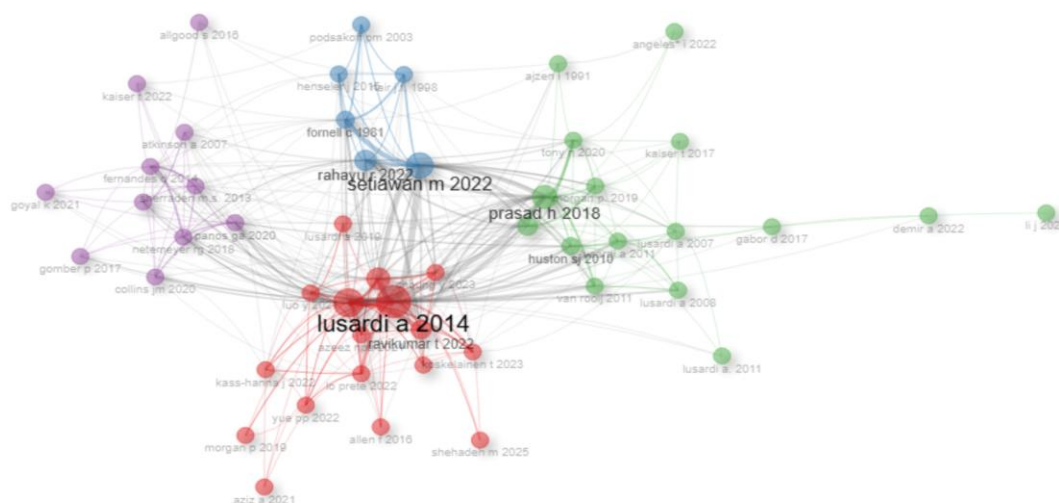


Figure 7. Co-citation Analysis

Sources: Compiled by the authors using Bibliometrix/Biblioshiny

As the bibliometric results provide an extensive overview of the intellectual and thematic development of the area, it is essential to conduct further theoretical analysis in order to shed light on the importance and scope of Digital Financial Knowledge in this emerging field.

CONCEPTUAL SYNTHESIS: TOWARDS DIGITAL FINANCIAL KNOWLEDGE

Conceptual Fragmentation in Digital Financial Research

The emergence of Digital Financial Knowledge is closely rooted in the broader concept of financial literacy, which has traditionally emphasized individuals' understanding of fundamental financial concepts, informed financial decision-making, and effective management of financial resources. Foundational work by (Lusardi & Mitchell, 2011) identifies financial knowledge as a prerequisite for sound financial behaviour and long-term financial well-being, while the (OECD, 2018) extends this perspective by defining financial literacy as a combination of financial awareness, knowledge, skills, attitudes, and behaviours required to make informed financial decisions. As financial services have increasingly transitioned to digital platforms, these traditional competencies have expanded to encompass knowledge of digital financial products, online financial transactions, cybersecurity, digital risk management, and the effective use of digital financial technologies. Consequently, Digital Financial Knowledge represents an evolution of conventional financial literacy by integrating financial competencies with the digital capabilities necessary to navigate contemporary digital financial ecosystems.

The scope of research on digital financial capabilities has increased as a result of the digital financial ecosystems' recent rapid growth. Despite this growth, the literature shows significant conceptual fragmentation with regard to the operationalization and definition of Digital Financial Knowledge (DFK). DFK is rarely defined as a theoretically independent construct in high-quality peer-reviewed studies. Instead, the use of overlapping terminology, such as Digital Financial Literacy (DFL) (S. A. Bhat et al., 2025a; Zaimovic, 2026), Financial Knowledge (Loke et al., 2025; Módosné Szalai et al., 2025), Digital Knowledge (Badrudin et al., 2025), often using them as interchangeable alternatives for similar cognitive and technical competencies.

A recent development in the literature is the incorporation of knowledge into wider multidimensional frameworks of DFL. In these formulations, knowledge is regarded as a fundamental element, positioned alongside digital skills, attitudes, and behavioural outcomes. Consequently, analyses of DFL often incorporate theoretical financial knowledge with actual digital capabilities, making it challenging to distinguish between cognitive comprehension and practical technical proficiency (G. Bhat, 2021; Zaimovic, 2026). In certain instances, studies evaluate digital knowledge mostly through indicators related to fraud detection or risk understanding, whereas others combine objective financial knowledge with subjective digital confidence, without explicitly defining digital financial knowledge as an independent construct (Badrudin et al., 2025; Módosné Szalai et al., 2025).

A similar area of study has searched for greater conceptual clarity by separating financial knowledge from broader literacy frameworks. Initial efforts to define DFK as a separate construct defined it as a multidimensional concept that connects conventional financial knowledge with the skills necessary for digitally mediated financial environments (Normawati et al., 2021; Suzana Ab Rahman et al., 2023).

Following contributions expanded on this framework by separating traditional economic knowledge, such as understanding inflation, interest rates, and financial instruments from digital-specific skills associated with technological navigation, platform usage, and security awareness (Achanta & Lepcha, 2025; Vieira et al., 2024). The findings from these studies promote a cognitively constrained definition of DFK, framing it as the organized competence required to comprehend and effectively interact with digital financial systems.

Other frameworks, however, greatly expand the construct. Using a multidimensional model with twelve determinants, such as contextual and psychometric elements like product suitability, self-determination, and social norms, as well as knowledge of digital financial services and risk management, (Ravikumar et al., 2022b) operationalize digital financial literacy. Integrative models demonstrate how behavioural, environmental, and systemic elements that go beyond cognitive comprehension are becoming more and more integrated into digital financial institutions. Dimensional norms are inconsistent, as demonstrated by the existence of expansive, integrative models and formulations with cognitive constraints. As a result, even while scholarly interest in digital financial knowledge is expanding, different research has different classifications.

The studied literature shows that knowledge is crucial to digital financial research, although its conceptual standing is unclear. Ambiguity reduces cross-study comparison and measurement development. Thus, this study explores whether repeating thematic elements across research indicate latent convergence that can help define digital financial knowledge.

Cross - Study Convergence of Core Elements

The previous section demonstrates conceptual variability and dimensional expansion in the literature; yet, an extensive assessment of the reviewed body of literature reveals considerable consistency. Despite variances in language and scope, fundamental components are universally present throughout research disciplines. This convergence indicates that the conceptual framework of the construct remains stable despite its adaptable external boundaries. The studies commonly address cognitive financial knowledge, digital awareness, risk and cybersecurity understanding, and practical digital knowledge.

Cognitive Financial Knowledge

The most frequently stated component is traditional financial knowledge as a basis for digital interaction. Numerous studies view digital financial competence as an extension of traditional financial literacy rather than a substitution. This dimension includes the understanding of economic fundamentals like inflation and interest rates, together with knowledge of financial products in the digital age. In the absence of this cognitive foundation, mere digital access is often considered inadequate for informed financial behaviour (Achanta & Lepcha, 2025; Normawati et al., 2021; Vieira et al., 2024). This dimension represents the conceptual foundation upon which digital financial competencies are developed and is consistently reflected across the reviewed literature.

Digital Awareness

A second recurring factor is digital awareness, which pertains to the recognition of digital financial platforms, services, and technologically driven transaction instances. Several studies emphasize the importance of understanding the relationship between general digital literacy and its application in financial contexts. This awareness is highlighted as a significant factor in effectively navigating financial tools and resources in a digital environment (A. Lyons & Kass-Hanna, 2021; Morgan et al., 2020). It demonstrates a person's comprehension of the accessibility, functionalities, and consequences of digital financial service providers in a more digitized environment. The increasing emphasis on digital financial ecosystems highlights Digital Awareness as a prerequisite for effective participation in digital financial services.

Risk and Cybersecurity Understanding

Risk and security awareness is significantly highlighted in a considerable number of the examined studies. This dimension includes understanding of online vulnerabilities, such as fraud scams, phishing attempts, and data privacy issues. Several studies notably differentiate between general risk awareness and the understanding of preventative measures necessary to secure digital financial transactions (K & Nigama, 2025); (S. A. Bhat et al., 2025a; Ravikumar et al., 2022b). The growing prevalence of digital fraud and cybersecurity threats underscores the importance of this dimension within contemporary Digital Financial Knowledge.

Digital Knowledge

A significant number of studies integrate procedural digital knowledge, which pertains to the comprehension of the operational mechanisms behind digital financial processes. This encompasses an understanding of transaction mechanisms, authentication procedures, and the logic behind platform navigation. One must be familiar with the processes of transactions, the procedures for authentication, and the rationale behind platform navigation (Badrudin et al., 2025; Morgan et al., 2020). This dimension operationalizes Digital Financial Knowledge by emphasizing the practical application of knowledge within digital financial environments.

Collectively, these four dimensions constitute the most regularly repeated elements in the reviewed literature. While various research may incorporate other psychological or contextual variables, the general agreement on

these basic features indicates a latent structural underpinning for expressing Digital Financial Knowledge with enhanced conceptual clarity.

Defining the Conceptual Scope of Digital Financial Knowledge

While the previous section stressed the importance of concurring on fundamental concepts, the literature review addressed how important it is to articulate the difference between Digital Financial Literacy (DFL) and Digital Financial Knowledge (DFK). According to the studies that were examined at, Digital Financial Literacy (DFL) is a multidimensional framework that covers knowledge, behaviour, attitude, and skill-based concepts (A. C. Lyons & Kass-Hanna, 2021; Su et al., 2022). Many frameworks define DFL as the ability to understand, utilize, and confidently engage with digital financial services, including motivation and behaviour (Ravikumar et al., 2022a).

In contrast, certain studies present DFK as the cognitively structured core that is integrated into the broader digital financial literacy construct (Normawati et al., 2021; Vieira et al., 2024). In this context, DFK denotes the structured collection of financial and digital knowledge requisite for behavioural implementation. Research differentiating financial knowledge from digital knowledge as distinct predictors of literacy further reinforces this distinction (Prakash et al., 2025). By isolating cognitive components, such methodologies facilitate a more accurate analysis of knowledge gaps encompassing an inadequate understanding of inflation, digital encryption, or the mechanics of financial products, irrespective of motivational or technical constraints.

A particularly complex area of overlap pertains to procedure details. Some frameworks regard digital navigation as a behavioural ability integrated inside digital financial literacy (DFL), whereas other research conceptualise it as an understanding of digital financial processes (Loke et al., 2025). In this interpretation, understanding transaction mechanisms, authentication protocols, and system logic constitutes structured procedural knowledge rather than mere technical execution. This distinction allows procedural familiarity to remain within the cognitive boundaries of DFK without collapsing it entirely into behavioural capability.

The distinction between DFK and DFL is primarily one of conceptual scope. DFL shows how knowledge, skills, and behaviour are used in digital financial environments as a whole and DFK, on the other hand, refers to the cognitive-digital base that supports this kind of engagement. Clarifying this border improves construct accuracy and minimises redundancy in empirical operationalisation. After finding the common themes in the literature, the next step is to articulate a unified conceptual definition of digital financial knowledge based on the studies that were examined.

Understanding basic financial concepts, digital financial systems, the risks that come with them, and the steps needed to safely interact in digitally mediated financial environments are all parts of digital financial knowledge. Thus, this review contributes to the advancement of analytical precision in digital financial research by meticulously explaining the scope of DFK, distinguishing it from the broader construct of Digital Financial Literacy, and articulating its constituent dimensions. A more stable foundation for empirical operationalisation, measurement development, and theoretical refinement in future studies is also provided by such clarification, which also reduces construct redundancy.

DISCUSSION

Theoretical Implications

This study contributes to the emerging Digital Financial Knowledge literature in three important ways. First, it consolidates fragmented conceptualizations reported across recent studies into a coherent four-dimensional framework comprising Cognitive Financial Knowledge, Digital Awareness, Risk and Cybersecurity Understanding, and Digital Knowledge. Second, by integrating bibliometric analysis with qualitative conceptual synthesis, the study provides a structured understanding of the evolution, thematic development, and conceptual boundaries of Digital Financial Knowledge. Third, the proposed framework offers a theoretical foundation for future scale development, empirical validation, and theory building in digital financial research.

The explains Digital Financial Knowledge (DFK) by describing it as a distinct part of digital financial literacy frameworks. It sets knowledge, skills, and behaviour, focusing on the conceptual ambiguity identified in previous studies. This clarity supports the development of more structured approaches to measure digital financial capability in today's financial environments.

Additionally, identifying usually common factors such as financial literacy, digital literacy, and risk and cybersecurity awareness establishes a systematic foundation for conceptualising Digital Financial Knowledge (DFK) more coherently. This perspective enhances the literature by providing a more precise and complex way to define the knowledge component, while keeping an apparent distinction from broader attitudinal and behavioural factors. As digital financial ecosystems continue to evolve, understanding Digital Financial Knowledge as a multidimensional construct becomes increasingly important. The proposed framework provides a clearer conceptual foundation for future empirical research and contributes to the development of more comprehensive approaches to measuring and enhancing Digital Financial Knowledge across diverse contexts.

Integration of Bibliometric and Conceptual Findings

A major contribution of this study is the integration of bibliometric mapping and conceptual synthesis, which jointly contribute to an extensive overview of the field structure and development. The bibliometric study shows that the research focus on digital financial literacy, financial inclusion, behavioural outcomes, and the usage of digital financial services. The keyword co-occurrence and thematic mapping analyses do not recognise Digital Financial Knowledge as a distinct construct, highlighting its restricted prominence within the formal framework of the literature.

The conceptual examination substantially supports these findings by showing that knowledge is not often seen as a distinct attribute. Instead, it is continually integrated into more extensive frameworks of literacy.

The conceptual examination thoroughly supports these findings by showing that knowledge is not often seen as a separate attribute. Rather, it is continually integrated into more comprehensive frameworks of literacy. The co-citation analysis adds to this conclusion, indicating that the conceptual frameworks of the area are rooted in conventional financial literacy theories, with digital enhancements integrated into established paradigms rather than conceived autonomously.

The convergence of these quantitative and qualitative observations underscores significant gap, although knowledge is implicitly acknowledged as an essential component of digital financial usage, it consists only of explicit conceptual clarification and operational distinction. This connection between bibliometric absence and conceptual ambiguity makes the case stronger that DFK is still not fully developed as its own area of study.

Policy Implications

The findings of this study carry important implications for policymakers, educators, and financial service providers. The study highlights crucial implications for legislators, educators, and financial service providers regarding financial literacy initiatives. The research advocates for defining Digital Financial Knowledge as a distinct cognitive area, proposing that specifically designed interventions focused on enhancing this knowledge will result in better and measurable outcomes. For instance, financial education programs should aim to deepen comprehension of digital financial products, the risks associated with cybercrime, and the mechanics of transactions

By defining Digital Financial Knowledge as a distinct cognitive domain suggests targeted interventions for knowledge development can improve outcomes. Financial education programs should aim to enhance understanding of digital products, cybersecurity risks, and transaction mechanisms, rather than just promoting usage. It is crucial to have standardised frameworks and measurement methodologies to evaluate digital financial knowledge. These are particularly important in emerging nations, where fraud and disinformation have become more common due to fast digitalisation.

Limitations and Future Research Directions

This study has several limitations that should be considered when interpreting the findings. First, the bibliometric analysis was restricted to publications indexed in the Web of Science Core Collection, which, although widely recognized for its high-quality metadata, may have excluded relevant studies indexed exclusively in other databases such as Scopus or Dimensions. Second, the conceptual synthesis was conducted using the accessible full-text articles identified from the bibliometric dataset. Consequently, the proposed conceptual framework reflects the evidence available from these studies. Third, the conceptual synthesis was conducted using a structured coding framework to ensure consistency in the extraction and comparison of concepts across the included studies. Although the coding process involved repeated review and refinement of the extracted data, future studies may employ multiple independent coders to further strengthen the reliability of thematic classification. Finally, as Digital Financial Knowledge is an emerging and rapidly evolving field, the proposed framework should be viewed as a foundation for further empirical validation and theoretical refinement.

The study further lays out few directions for future research. Future research may expand the bibliometric dataset by incorporating additional databases such as Scopus, Dimensions, or Crossref to provide broader coverage of the literature. Comparative bibliometric analyses across multiple databases could further validate the observed publication trends and thematic structures. Moreover, future studies should empirically validate the proposed four-dimensional framework across different populations and geographical contexts to assess its generalizability and applicability.

Future studies may perform robustness checks using alternative keyword inclusion thresholds, bibliometric techniques (e.g., bibliographic coupling), and multiple databases to validate the stability of the identified thematic structures.

CONCLUSION

This research offers an extensive analysis of the Digital Financial Literacy (DFL) literature by employing a hybrid methodology that combines bibliometric analysis with conceptual synthesis. Utilising a dataset of 42 Web of Science-indexed papers, the study delineates the intellectual, thematic, and structural growth of the area, while concurrently addressing a significant conceptual gap related to Digital Financial Knowledge (DFK).

The bibliometric results show that the research area is growing quickly and is focused on digital financial literacy, financial inclusion, behavioural outcomes, and technology adoption. Nonetheless, despite the prominence of knowledge in these conversations, Digital Financial Knowledge does not surface as a distinct or independently acknowledged issue. Instead, it stays a part of wider frameworks for literacy and skills. The conceptual analysis supports this observation by showing that there is a lot of fragmentation and inconsistency in how studies identify, use, and combine knowledge.

This study shows an enhanced conceptualisation of Digital Financial Knowledge (DFK) as a cognitively constrained, multidimensional construct encompassing financial literacy, digital awareness, risk and cybersecurity knowledge, and procedural understanding. By distinguishing knowledge from skills and behaviours, the research improves clarity and coherence in the digital financial literature. The results support progress from general literacy frameworks to more specific structures, establishing DFK as an essential independent area. This progress not only makes theory more accurate, but it also makes it easier to build specific measuring tools, effective policy changes, and future empirical study. As digital financial ecosystems change, it will be important to understand the cognitive basis of user involvement in order to encourage safe and open participation in the digital economy.

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Ethics Approval and Consent to Participate

Not applicable.

Consent for Publication

Not applicable.

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The authors declare that they have no known competing financial or non-financial interests that could have appeared to influence the work reported in this paper.

Author Contributions

Ms. YDL contributed to the conceptualisation and design of the study. Dr. ARP, Ms. YDL, and Mr. BA were involved in data extraction and bibliometric analysis using R (Biblioshiny). Ms. YDL conducted the conceptual synthesis and prepared the first draft of the manuscript. Dr. ARP and Mr. BA critically reviewed, edited and refined the manuscript. All authors read and approved the final version of the manuscript.

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