

## Financial inclusion in the digital era: Conceptual perspectives on access, awareness and participation

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**Abstract---**Financial inclusion has emerged as an important dimension of inclusive economic development, particularly as technological transformation has altered the structure, delivery and accessibility of financial services. Traditionally, financial inclusion was primarily associated with access to formal banking institutions, savings facilities, credit, insurance and payment services; however, the rapid development of digital finance, fintech, mobile banking, digital payments, blockchain and technology-enabled financial platforms has substantially expanded the meaning and scope of financial inclusion. This paper examines financial inclusion in the digital era through three interconnected conceptual perspectives: access, awareness and participation. The study adopts a theoretical and exploratory research design based on a qualitative review and synthesis of existing literature concerning financial inclusion, digital finance, fintech, financial literacy, digital literacy, alternative financing mechanisms and emerging financial technologies. The analysis suggests that access represents the foundational dimension of financial inclusion because individuals and businesses must first be able to obtain appropriate, affordable and accessible financial services. Nevertheless, access alone does

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not ensure meaningful inclusion because users also require adequate awareness and capability to understand financial products, evaluate risks, navigate digital platforms and make informed financial decisions. Participation consequently represents the outcome of effective access and awareness, encompassing the actual and sustained use of financial services for payments, savings, credit, insurance, investment and entrepreneurial activities. The literature further indicates that digital technologies can reduce geographical, informational and transactional barriers while simultaneously creating new forms of exclusion associated with digital literacy, technological infrastructure, trust, cybersecurity and information asymmetry. The paper therefore argues that financial inclusion in the digital era should be conceptualized as a multidimensional process in which technological access, financial awareness and meaningful participation interact within an institutional and regulatory environment. Overall, digital transformation provides substantial opportunities for expanding financial inclusion, but its effectiveness depends upon the capacity of individuals and businesses to access, understand and meaningfully participate in increasingly digital financial ecosystems.

**Keywords---**Financial Inclusion, Digital Finance, Financial Access, Financial Awareness, Financial Participation, Fintech.

## Introduction

Financial inclusion has long remained an important concern within financial development because access to appropriate financial services influences the capacity of individuals, households and businesses to save, borrow, invest, make payments, manage risks and participate in economic activities. Historically, financial inclusion was largely understood in terms of physical access to formal financial institutions, particularly banks, credit providers, insurance companies and payment systems. Individuals and enterprises located in geographically remote areas, operating with limited financial resources, lacking formal documentation or possessing insufficient knowledge of financial products were frequently more likely to remain outside formal financial systems. The development of financial inclusion therefore focused substantially on expanding banking infrastructure, increasing the availability of financial products and reducing barriers that prevented underserved groups from participating in formal finance. However, the transformation of financial systems during the last two decades has significantly altered this traditional understanding. The expansion of digital finance, fintech, mobile banking, electronic payment systems and technology-enabled financial services has created new channels through which individuals and businesses can access financial services without relying exclusively on conventional branch-based institutions. The evolution of finance research itself reflects this broader transformation, with increasing scholarly attention being directed toward emerging financial technologies, behavioural dimensions, digital finance and alternative financial mechanisms (Alhenawi et al., 2022; Al-Suwaidi & Nobanee, 2021; Sharma & Kumar, 2019; Gomes, 2023).

The digital transformation of finance has created considerable opportunities for extending financial access to populations that have historically remained underserved. Mobile devices, internet-based platforms and digital payment systems can reduce the importance of physical distance between customers and financial institutions and can facilitate transactions at relatively low cost. Fintech firms have further expanded the range of financial services available through technology-enabled platforms, particularly in areas such as payments, lending, investment and financing. Sanga and Aziakpono (2023), through their systematic literature review and bibliometric analysis, highlight the increasing importance of fintech in financing, particularly for small and medium-sized enterprises that may encounter limitations within conventional financial systems. Similarly, research concerning alternative financing and technology-enabled financial systems demonstrates that the financial environment is increasingly characterized by new forms of access and participation (Arena et al., 2018; Pandey et al., 2023; Skare et

al., 2023). These developments suggest that digital technology can potentially reduce some of the geographical, transactional and institutional barriers that historically contributed to financial exclusion. Nevertheless, technological availability does not necessarily translate automatically into effective financial inclusion because the ability to use financial services depends upon awareness, knowledge, digital capabilities, trust and the perceived usefulness of those services.

The changing nature of financial inclusion is particularly evident when the concept of access is considered alongside awareness and participation. Access represents the basic availability of appropriate financial services to individuals and businesses, but meaningful inclusion requires more than simply possessing a bank account, mobile wallet or digital financial application. Individuals must understand the financial products available to them, recognize the costs and risks associated with those products and possess sufficient confidence and capability to use them effectively. This issue becomes increasingly important as digital financial systems provide consumers with access to a wider range of products through highly convenient platforms. Financial literacy and digital literacy therefore become closely interconnected components of financial inclusion. An individual may possess the technological ability to operate a digital financial application but may not understand interest rates, transaction charges, investment risk or borrowing conditions. Conversely, an individual may possess financial knowledge but lack the digital capability or technological infrastructure required to access digital services. Siddik et al. (2023) highlight the relationship between fintech adoption, financial literacy and access to finance, reinforcing the importance of considering technological access and financial capability together. The importance of awareness is also consistent with the broader behavioural finance literature, which demonstrates that individuals do not always process financial information in a completely rational manner and that financial decisions can be influenced by cognitive limitations, psychological biases and social factors (Badola et al., 2023; Beshears et al., 2018; Gomes, 2023).

The concept of participation consequently provides a further dimension to financial inclusion. An individual may technically have access to a bank account or digital financial service without becoming an active participant in the formal financial system. Meaningful participation involves the actual and sustained use of financial services for payments, savings, credit, insurance, investment and other legitimate financial activities. Participation is therefore influenced not only by availability but also by affordability, usability, awareness, trust, perceived benefits and the individual's capacity to make informed financial choices. Digital finance has the potential to increase participation because it can simplify transactions and make financial services more convenient, but the same digital environment can also introduce new barriers. Individuals with limited digital skills, inadequate internet connectivity, low financial literacy or concerns regarding privacy and cybersecurity may remain reluctant to use digital financial services. The digital transformation of finance can therefore simultaneously reduce traditional forms of exclusion and create new forms of digital exclusion. This dual character of technological transformation is particularly relevant to contemporary financial inclusion because technology should be viewed as an enabling mechanism rather than as an automatic guarantee of inclusion (Banaeian Far et al., 2023; Bai et al., 2022; Li et al., 2023; Tao & Chao, 2023; Xie et al., 2023).

The emergence of fintech and blockchain-based financial systems has further broadened the conceptual boundaries of financial inclusion. Fintech platforms have created alternative channels for financing and financial service delivery, while blockchain and decentralized finance have introduced new possibilities for conducting financial activities outside conventional institutional structures. Banaeian Far et al. (2023) discuss blockchain and related technologies in the context of decentralized finance and emerging digital businesses, while Piñeiro-Chousa et al. (2023) consider social dimensions associated with decentralized finance. These developments demonstrate that financial participation is increasingly taking place within technologically complex ecosystems that differ considerably from traditional banking environments. At the same time, technological complexity may itself become a barrier to participation for individuals who lack appropriate knowledge and digital capabilities. The expansion of digital finance therefore creates an important conceptual question concerning whether technological innovation

necessarily results in greater inclusion or whether its benefits depend upon the capacity of users and institutions to convert technological availability into effective financial participation.

## Literature Review

The literature on financial inclusion has evolved substantially alongside changes in financial institutions, technology and economic participation. Earlier perspectives generally emphasized the availability of formal banking services and the removal of geographical or institutional barriers, whereas contemporary research increasingly considers digital finance, fintech, financial literacy, digital capability, alternative financing mechanisms and emerging technologies. This evolution reflects the broader transformation of financial systems from predominantly physical and institution-based structures toward increasingly digital and interconnected ecosystems. Alhenawi et al. (2022) demonstrate the changing scope of finance research, while Al-Suwaidi and Nobanee (2021) highlight the continuing importance of institutional and regulatory dimensions within financial systems. More recent research has extended this discussion toward fintech, digital finance, blockchain and alternative financing, suggesting that the meaning of financial inclusion must evolve alongside the financial infrastructure through which services are delivered.

A central theme within the literature is the concept of financial access. Access represents the first and most fundamental condition of financial inclusion because individuals and businesses cannot participate in formal financial systems unless appropriate financial services are available to them. Traditional barriers to access have included geographical distance, limited banking infrastructure, high transaction costs, insufficient documentation and inadequate availability of financial institutions. Digital finance has the potential to reduce several of these barriers by allowing financial services to be delivered electronically. Mobile banking, digital payments and fintech platforms can connect customers with financial services without requiring physical proximity to a bank branch. Research on fintech and SME financing particularly demonstrates the potential for technology-enabled financial services to create alternative financing channels for businesses that may experience limitations in conventional credit markets (Sanga & Aziakpono, 2023). Similarly, research on entrepreneurial finance and alternative financing mechanisms indicates that technology and new financial institutions can expand the range of opportunities available to previously underserved groups (Arena et al., 2018; Pandey et al., 2023; Skare et al., 2023).

However, the literature also indicates that access should not be interpreted simply as the existence of financial products. Appropriate access requires affordability, availability, convenience and suitability. A financial service may technically be available but remain inaccessible if its cost is excessive, its conditions are difficult to understand or its delivery mechanism is incompatible with the user's capabilities. This distinction becomes particularly important in digital financial environments because access to a smartphone or internet connection does not necessarily mean that an individual can effectively access or use financial services. Digital infrastructure, device availability and technological capability become part of the access equation. Research concerning blockchain, digital finance and technology-enabled financial systems further suggests that new technologies can create alternative pathways to financial services but may simultaneously introduce technical complexity and new forms of exclusion (Bai et al., 2022; Banaeian Far et al., 2023; Li et al., 2023; Tao & Chao, 2023). Financial inclusion in the digital era therefore requires the integration of financial access with digital access.

The second important dimension is financial awareness. Awareness refers to an individual's knowledge and understanding of available financial products, their costs, benefits, risks and appropriate uses. The importance of awareness becomes more pronounced as financial systems become more complex. Traditional financial institutions generally provide a relatively defined range of products, whereas digital platforms can provide users with access to multiple financial services through a single interface. While this expansion increases choice, it can also make decision-making more difficult for individuals who

lack financial knowledge. Financial literacy therefore becomes an important foundation for meaningful financial inclusion. Siddik et al. (2023) demonstrate the relevance of financial literacy in the context of fintech adoption and access to finance, suggesting that technology and knowledge should be considered jointly rather than independently. The literature on behavioural finance further strengthens this argument by demonstrating that individuals may not always interpret financial information objectively and may rely on simplified decision rules or psychological tendencies when evaluating financial alternatives (Badola et al., 2023; Beshears et al., 2018; Gomes, 2023).

Digital literacy represents an additional component of awareness in the contemporary financial environment. Financial literacy enables individuals to understand financial concepts, while digital literacy enables them to navigate digital platforms and technology-based services. The two forms of capability are therefore complementary. An individual who understands borrowing costs but cannot safely navigate a digital lending platform may still face exclusion, while an individual who can operate a digital platform but does not understand interest rates, fees or contractual conditions may participate without adequate financial awareness. The literature on digital transformation, fintech and emerging financial systems consequently supports a broader concept of digital financial capability in which financial knowledge and digital skills interact. This perspective is particularly relevant when considering emerging technologies such as blockchain and decentralized finance, where technical and financial complexity may be significant (Banaeian Far et al., 2023; Piñeiro-Chousa et al., 2023).

The third dimension is participation. Participation moves the concept of financial inclusion beyond the question of whether services are available toward the question of whether individuals and businesses actually use them. An individual may possess a bank account, mobile wallet or digital financial application but remain only nominally connected to the formal financial system. Meaningful participation requires actual engagement with financial services through payments, savings, credit, insurance, investment and business financing. Participation is therefore dependent upon access, awareness, trust, affordability and perceived usefulness. Research concerning digital finance and household behaviour demonstrates that participation in digital financial systems can influence broader household economic outcomes (Han et al., 2023; Hu et al., 2023). In this sense, financial inclusion is not simply an indicator of account ownership but a process through which individuals become active participants in formal financial and economic systems.

The relationship between access, awareness and participation can also be understood through the concept of financial capability. Access provides the opportunity to participate, awareness provides the knowledge required to evaluate alternatives, and capability allows individuals to convert those opportunities and knowledge into appropriate financial action. Financial participation may subsequently reinforce financial capability by providing individuals with experience in managing financial products and making financial decisions. The relationship is therefore potentially dynamic rather than strictly linear. Financial literacy may increase demand for financial services, while participation may increase experience and awareness. The literature concerning behavioural finance and financial decision-making suggests that this process is influenced by individual characteristics and psychological factors, meaning that the same financial opportunity may generate different outcomes for different users (Badola et al., 2023; Gomes, 2023; Sharma & Kumar, 2019).

Digital finance represents a major mechanism through which the relationship between access, awareness and participation is being transformed. Digital platforms can make financial services faster, more convenient and geographically accessible. Hu et al. (2023) examine the relationship between digital finance and household consumption upgrading, illustrating how digital financial systems can influence economic behaviour beyond conventional banking transactions. Han et al. (2023) similarly examine digital finance and women's bargaining power, indicating that digital financial participation may influence broader socioeconomic relationships. These findings suggest that digital financial inclusion can potentially contribute to economic empowerment and household participation. However, the

benefits depend upon the quality of access and the capacity of individuals to use financial services effectively.

Fintech represents another important area of the financial inclusion literature. Fintech firms have introduced alternative mechanisms for delivering payments, credit, investment and financing services. Sanga and Aziakpono (2023) demonstrate the growing importance of fintech in SME financing, while research concerning startup financing, venture capital and alternative financing mechanisms suggests that technological platforms can expand financial opportunities for entrepreneurial activity (Pandey et al., 2023; Skare et al., 2023). The potential contribution of fintech to financial inclusion arises partly from its ability to operate through digital channels and potentially serve customers who are underserved by traditional financial institutions. However, fintech does not eliminate the need for awareness and regulation. Digital products can be complex, and rapid access to financial services can increase the possibility of inappropriate borrowing, excessive risk-taking or uninformed financial decisions. Effective fintech-based inclusion therefore requires a balance between innovation, accessibility, transparency and consumer protection.

Table 1: Financial Inclusion in the Digital Era: Conceptual Perspectives on Access, Awareness and Participation

| Sr. No. | Author(s) & Year            | Focus Area                              | Methodology                    | Key Findings/ Contribution                                                                   | Relevance to Study                                            |
|---------|-----------------------------|-----------------------------------------|--------------------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| 1       | Al-Suwaidi & Nobanee (2021) | Financial regulation                    | Literature-based review        | Highlights the importance of institutional and regulatory dimensions in contemporary finance | Establishes institutional support for inclusion               |
| 2       | Alhenawi et al. (2022)      | Evolution of finance research           | Literature analysis            | Demonstrates diversification and evolution of finance research                               | Provides broader context for digital financial transformation |
| 3       | Arena et al. (2018)         | Social technology start-ups and finance | Conceptual/empirical analysis  | Examines financing opportunities for technology-oriented enterprises                         | Links financial access with entrepreneurship                  |
| 4       | Badola et al. (2023)        | Behavioural biases                      | Systematic literature review   | Identifies behavioural biases affecting individual investment decisions                      | Highlights awareness and behavioural capability               |
| 5       | Bai et al. (2022)           | Blockchain and supply-chain finance     | Literature/analytical approach | Examines blockchain-related financial applications and challenges                            | Demonstrates technological dimensions of financial access     |
| 6       | Banaeian Far et al. (2023)  | Blockchain and decentralized finance    | Conceptual/literature analysis | Examines blockchain and emerging                                                             | Highlights emerging digital participation                     |

| Sr. No. | Author(s) & Year             | Focus Area                                   | Methodology                    | Key Findings/ Contribution                                            | Relevance to Study                                |
|---------|------------------------------|----------------------------------------------|--------------------------------|-----------------------------------------------------------------------|---------------------------------------------------|
|         |                              |                                              |                                | decentralized financial systems                                       |                                                   |
| 7       | Beshears et al. (2018)       | Behavioural decision-making                  | Theoretical/empirical research | Demonstrates importance of behavioural factors in financial decisions | Supports behavioural dimension of awareness       |
| 8       | Blanck & Ribeiro (2021)      | Technology-enabled financing                 | Empirical/modelling approach   | Examines financial mechanisms within technology-oriented environments | Links technology and financing access             |
| 9       | Goldbarsht & Harris (2020)   | Financial systems and regulation             | Analytical/legal approach      | Highlights institutional dimensions of financial systems              | Supports trust and regulatory environment         |
| 10      | Gomes (2023)                 | Behavioural economics and finance            | Selective literature review    | Reviews models, methods and tools in behavioural finance              | Supports behavioural awareness                    |
| 11      | Guo et al. (2023)            | Digital financial development                | Empirical/literature analysis  | Examines implications of digital financial transformation             | Supports digital inclusion perspective            |
| 12      | Habib & Hasan (2019)         | Financial participation and firms            | Empirical/literature approach  | Examines financial dimensions affecting economic activity             | Supports broader participation perspective        |
| 13      | Han et al. (2023)            | Digital finance and women's bargaining power | Empirical analysis             | Examines socioeconomic effects of digital finance                     | Highlights empowerment through participation      |
| 14      | Hu et al. (2023)             | Digital finance and household consumption    | Empirical analysis             | Examines relationship between digital finance and household behaviour | Demonstrates broader effects of digital inclusion |
| 15      | Ibrahim & Mohd Sopian (2022) | Financial inclusion                          | Literature/empirical analysis  | Examines dimensions influencing access to financial services          | Supports access dimension                         |
| 16      | Jia et al.                   | Financial                                    | Empirical/literature           | Examines                                                              | Supports digital                                  |

| Sr. No. | Author(s) & Year             | Focus Area                            | Methodology                                            | Key Findings/ Contribution                                    | Relevance to Study                           |
|---------|------------------------------|---------------------------------------|--------------------------------------------------------|---------------------------------------------------------------|----------------------------------------------|
|         | (2020)                       | services and digitalization           | approach                                               | changing financial-service environment                        | transformation                               |
| 17      | Karakoç (2023)               | Financial institutions and regulation | Analytical approach                                    | Highlights institutional considerations in financial systems  | Supports institutional dimension             |
| 18      | Kumar (2017)                 | Financial inclusion                   | Literature/empirical analysis                          | Examines determinants and dimensions of inclusion             | Provides foundational inclusion perspective  |
| 19      | Lahmar & Piras (2023)        | Financial information                 | Literature analysis                                    | Examines financial information and communication dimensions   | Supports awareness and information access    |
| 20      | Li et al. (2023)             | Digital financial services            | Empirical analysis                                     | Examines digitalization and financial-service participation   | Supports digital access                      |
| 21      | Martín-Barrera et al. (2016) | Financial services                    | Conceptual/empirical analysis                          | Examines financial participation and service access           | Supports traditional access perspective      |
| 22      | Moretto et al. (2019)        | Alternative finance                   | Literature/analytical approach                         | Examines evolution of alternative financial mechanisms        | Demonstrates changing access mechanisms      |
| 23      | Pandey et al. (2023)         | Venture capital and financing         | Bibliometric/literature review                         | Examines development of entrepreneurial financing research    | Supports enterprise participation            |
| 24      | Peón & Antelo (2012)         | Financial decision-making             | Theoretical analysis                                   | Questions realism of traditional normative financial models   | Supports broader decision-making perspective |
| 25      | Piñeiro-Chousa et al. (2023) | Decentralized finance                 | Conceptual/empirical analysis                          | Examines social dimensions of decentralized financial systems | Supports emerging participation mechanisms   |
| 26      | Sanga & Aziakpono (2023)     | Fintech and SME financing             | Systematic literature review and bibliometric analysis | Highlights fintech as an alternative financing mechanism      | Supports digital access and SME inclusion    |

| <b>Sr. No.</b> | <b>Author(s) &amp; Year</b> | <b>Focus Area</b>                | <b>Methodology</b>            | <b>Key Findings/ Contribution</b>                                        | <b>Relevance to Study</b>                       |
|----------------|-----------------------------|----------------------------------|-------------------------------|--------------------------------------------------------------------------|-------------------------------------------------|
| 27             | Sharma & Kumar (2019)       | Behavioural finance              | Literature review             | Identifies emerging trends in behavioural finance                        | Supports behavioural awareness                  |
| 28             | Siddik et al. (2023)        | Fintech and financial literacy   | Empirical analysis            | Links fintech adoption, financial literacy and access to finance         | Directly supports awareness-access relationship |
| 29             | Silva et al. (2021)         | Finance and economic development | Empirical/literature analysis | Examines relationship between financial systems and economic development | Establishes broader development implications    |
| 30             | Skare et al. (2023)         | Financing decision support       | Decision-support analysis     | Examines technology-supported financing decisions                        | Links technology with participation             |
| 31             | Stefanelli et al. (2022)    | Crowdfunding and financing       | Literature/empirical approach | Examines alternative financing mechanisms                                | Demonstrates alternative participation          |
| 32             | Tao & Chao (2023)           | Digital finance                  | Empirical/analytical approach | Examines developments in digital financial systems                       | Supports digital transformation                 |
| 33             | Tian et al. (2022)          | Financial technology             | Empirical/literature approach | Examines technology-related financial developments                       | Supports technological dimension                |
| 34             | Tseng et al. (2021)         | Digital financial services       | Empirical/analytical approach | Examines digital transformation and financial participation              | Supports access and participation               |
| 35             | Villasaca et al. (2021)     | Entrepreneurial finance          | Empirical analysis            | Examines financing and participation of entrepreneurs                    | Supports inclusive entrepreneurial finance      |
| 36             | H. Wang et al. (2023)       | Digital finance                  | Empirical analysis            | Examines implications of digital financial development                   | Supports digital inclusion                      |
| 37             | X. Wang (2023)              | Financial technology             | Analytical/empirical approach | Examines technology-enabled financial development                        | Supports technology dimension                   |
| 38             | Xie et al. (2023)           | Digital financial participation  | Empirical/literature analysis | Examines digital financial                                               | Supports participation                          |

| Sr. No. | Author(s) & Year   | Focus Area                    | Methodology                   | Key Findings/ Contribution                           | Relevance to Study                                |
|---------|--------------------|-------------------------------|-------------------------------|------------------------------------------------------|---------------------------------------------------|
|         |                    |                               |                               | development and participation                        | dimension                                         |
| 39      | Zeng et al. (2023) | Digital finance and inclusion | Empirical/analytical approach | Examines digital financial development and inclusion | Supports integrated digital inclusion perspective |

The literature presented in Table 1 demonstrates the broadening scope of financial inclusion research from traditional questions concerning financial access toward a multidimensional understanding involving digital technologies, financial literacy, behavioural characteristics, alternative financing and institutional conditions. The studies collectively indicate that access remains a necessary foundation, but awareness and participation determine whether access produces meaningful financial inclusion. Research on fintech, digital finance and blockchain further suggests that technological transformation is changing the mechanisms through which individuals and businesses enter and participate in financial systems (Alhenawi et al., 2022; Banaeian Far et al., 2023; Sanga & Aziakpono, 2023). At the same time, behavioural and financial literacy perspectives demonstrate that technological availability cannot be separated from the knowledge and capabilities of users (Badola et al., 2023; Gomes, 2023; Sharma & Kumar, 2019; Siddik et al., 2023).

### Methodology

This study adopts a theoretical and exploratory research design to examine financial inclusion in the digital era through the conceptual perspectives of access, awareness and participation. The primary objective of the study is to develop an integrated theoretical understanding of how digital transformation is changing the nature of financial inclusion and how access to financial services interacts with financial awareness and actual participation. The study is based on a qualitative review and synthesis of existing literature, drawing upon theoretical papers, literature reviews, systematic reviews, bibliometric studies and empirical research concerning financial inclusion, digital finance, fintech, financial literacy, behavioural finance, blockchain, alternative financing and financial participation. This approach is appropriate because the objective of the study is conceptual rather than empirical and is intended to consolidate different strands of existing financial literature into a coherent framework. The literature reviewed includes studies examining the evolution of finance research, behavioural dimensions of financial decision-making, digital financial services, fintech financing, household financial behaviour, entrepreneurial finance and emerging decentralized financial systems (Alhenawi et al., 2022; Badola et al., 2023; Gomes, 2023; Sanga & Aziakpono, 2023).

A thematic approach is adopted to organize the literature into the principal conceptual dimensions of financial inclusion. The first theme concerns **access**, which includes the availability, affordability, convenience and accessibility of formal and digital financial services. The second theme concerns **awareness**, incorporating financial literacy, digital literacy, information availability, understanding of financial products and the ability to evaluate financial costs and risks. The third theme concerns **participation**, which refers to the actual and sustained use of financial services for payments, savings, credit, insurance, investment and business financing. In addition to these three central dimensions, the study considers technology, trust, regulation and institutional support as contextual factors that can influence the relationship between access, awareness and participation. This thematic organization enables the study to move beyond a descriptive discussion of individual studies and instead examine how different strands of literature collectively contribute to the conceptualization of digital financial inclusion.

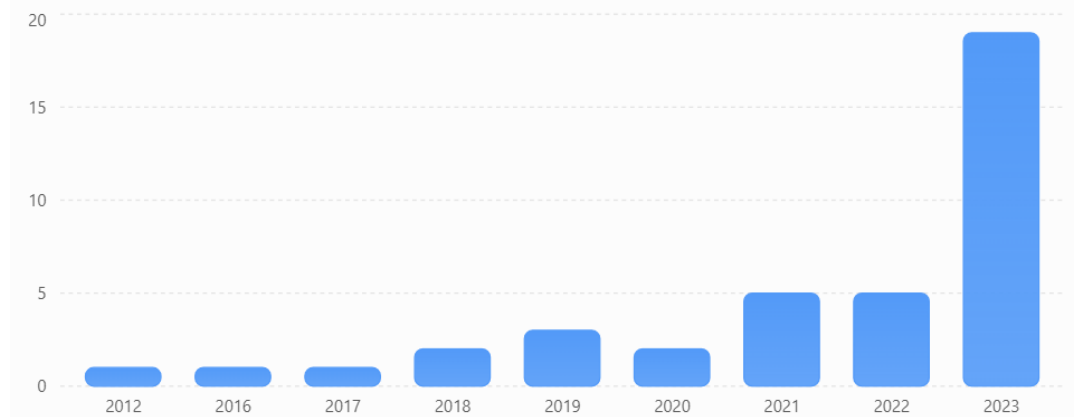
Table 2: Distribution of Reviewed Studies by Publication Year

| Publication Year | No. of Studies | Percentage  |
|------------------|----------------|-------------|
| 2012             | 1              | 2.56%       |
| 2016             | 1              | 2.56%       |
| 2017             | 1              | 2.56%       |
| 2018             | 2              | 5.13%       |
| 2019             | 3              | 7.69%       |
| 2020             | 2              | 5.13%       |
| 2021             | 5              | 12.82%      |
| 2022             | 5              | 12.82%      |
| 2023             | 19             | 48.72%      |
| <b>Total</b>     | <b>39</b>      | <b>100%</b> |

The analytical framework of the study is grounded in comparative and integrative analysis. Traditional perspectives on financial inclusion are compared with emerging perspectives associated with digital finance and fintech in order to identify how the meaning of access has changed with technological development. The literature concerning financial literacy and behavioural finance is then integrated to examine why access alone may not result in informed participation. Finally, research concerning fintech, blockchain, decentralized finance and alternative financing mechanisms is incorporated to understand how technological developments are creating new opportunities as well as new barriers. The study therefore treats financial inclusion as a multidimensional phenomenon rather than as a single measure of account ownership or service availability. This conceptual approach is consistent with the broader evolution of finance research toward interdisciplinary perspectives that combine financial, technological, behavioural and institutional considerations (Alhenawi et al., 2022; Banaeian Far et al., 2023; Sharma & Kumar, 2019).

#### Publication-Year Distribution of Studies Reviewed

Number of studies reviewed in the financial inclusion paper by publication year.



Source: Numerical coding of the 39 studies listed in the paper's literature review table.

**Chart 2: Publication-Year Distribution**

## Discussion

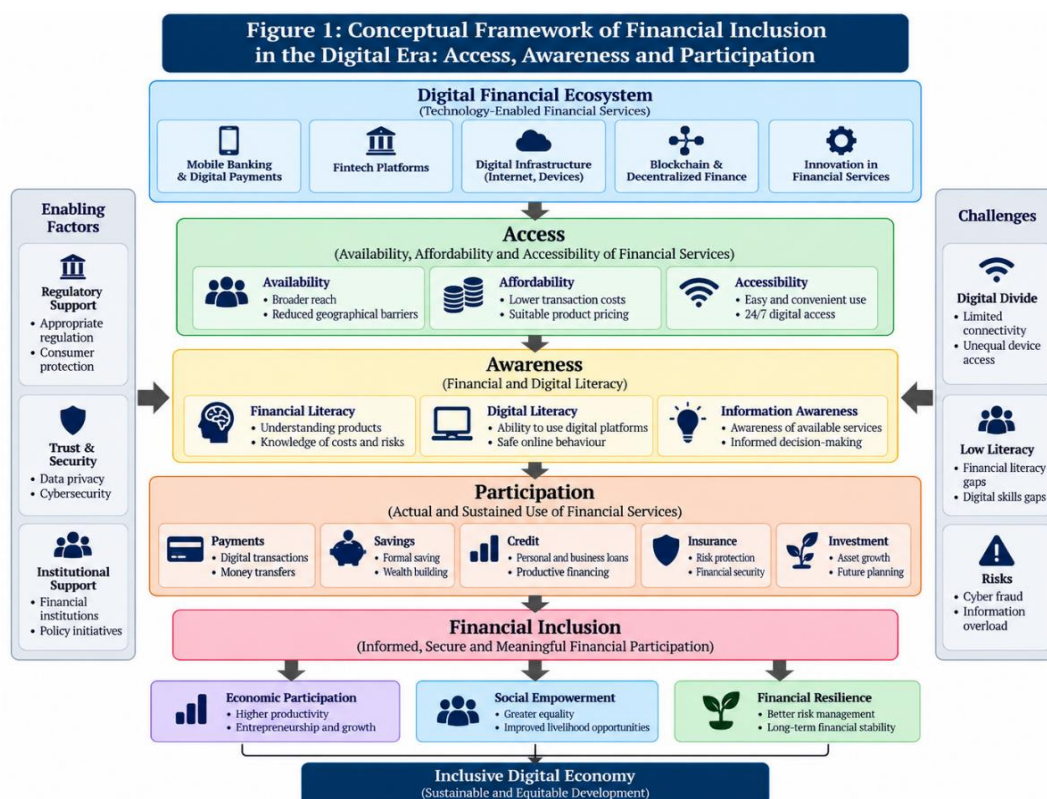
The findings from the reviewed literature reinforce the argument that financial inclusion in the digital era should be understood as a multidimensional process rather than simply as the availability of formal

financial services. Traditional approaches to inclusion placed considerable emphasis on physical access to banking institutions, savings facilities and credit services, whereas contemporary financial systems increasingly operate through digital platforms that can overcome some geographical and transactional barriers. The transformation from branch-based finance toward mobile banking, fintech and digital financial services has consequently expanded the potential reach of formal finance. However, the literature also demonstrates that technological availability does not necessarily guarantee effective inclusion. The transition toward digital finance changes the mechanisms through which financial services are delivered, but the fundamental requirement remains that individuals and businesses must be able to access appropriate services and use them effectively. The conceptual framework developed in this study therefore places access at the foundation of financial inclusion while recognizing that access must be complemented by awareness and participation.

From the perspective of access, digital finance provides significant opportunities to reduce traditional barriers. Mobile and internet-based financial services can allow customers to conduct transactions without depending entirely on physical bank branches, while fintech platforms can create alternative mechanisms for financing and financial service delivery. The literature on fintech and SME financing demonstrates the potential importance of these developments for businesses that may face difficulties obtaining finance through conventional institutions (Sanga & Aziakpono, 2023). Similarly, research on alternative financing, crowdfunding, venture capital and technology-enabled decision support indicates that the structure of financial access is becoming increasingly diverse (Pandey et al., 2023; Skare et al., 2023; Stefanelli et al., 2022). These developments suggest that digitalization can contribute to financial inclusion by increasing the number of channels through which financial services are available. Nevertheless, the effectiveness of these channels depends upon affordability, infrastructure and usability. If users lack devices, reliable connectivity or digital capabilities, the existence of a digital financial service may not translate into actual access. Digital finance therefore reduces certain traditional barriers while simultaneously making technological capability an important condition of inclusion.

The second major finding concerns the importance of awareness. The literature indicates that access without sufficient financial knowledge can result in only superficial participation. Financial services are increasingly complex, and digital platforms can provide users with access to multiple products and services through highly convenient interfaces. This convenience can improve participation but may also increase the possibility of uninformed decisions. Financial literacy is therefore essential because users must understand interest rates, transaction costs, borrowing conditions, investment risks and other financial characteristics before they can use financial services effectively. Siddik et al. (2023) highlight the relationship between fintech adoption, financial literacy and access to finance, providing support for the argument that technological access should be accompanied by financial capability. Behavioural finance research further suggests that financial awareness should not be interpreted solely as the possession of technical knowledge because individuals can still be influenced by cognitive biases, emotions and social pressures (Badola et al., 2023; Beshears et al., 2018; Gomes, 2023; Sharma & Kumar, 2019). Awareness therefore includes both knowledge and the ability to apply that knowledge in actual financial decision-making.

Digital literacy adds another layer to this relationship. In traditional financial systems, financial literacy may have been sufficient for many basic financial transactions because customers interacted directly with bank employees and physical institutions. In a digital environment, however, users must navigate applications, authentication procedures, digital interfaces and electronic transactions. Consequently, digital literacy becomes an essential complement to financial literacy. A person who understands financial concepts but cannot use digital platforms may remain excluded from digital finance, while a person who is technologically capable but lacks financial understanding may use digital services without adequately evaluating the associated costs and risks. The combination of financial and digital literacy can therefore be conceptualized as **digital financial capability**.



**Figure 1: Conceptual framework of financial inclusion in the digital era**

The conceptual framework illustrates that financial inclusion in the digital era is not achieved through technological access alone. Digital finance, fintech, digital infrastructure and technological innovation create the foundation through which financial services can become more accessible to individuals and businesses. However, access represents only the first stage of the inclusion process. Financial literacy, digital literacy and information awareness determine whether individuals possess the capability to understand and evaluate the financial services available to them. These factors collectively contribute to digital financial capability, which facilitates meaningful participation in payments, savings, credit, insurance, investment and business financing. Effective participation can subsequently contribute to broader economic participation, social empowerment and financial resilience. Throughout this process, trust, affordability, cybersecurity, regulation, consumer protection and institutional support influence the extent to which digital access can be converted into sustainable financial inclusion. The framework therefore conceptualizes financial inclusion as an interaction between technological opportunity and human capability within an appropriate institutional environment.

## Conclusion

Financial inclusion in the digital era represents a significant transformation in the way individuals, households and businesses interact with formal financial systems. Traditional approaches to financial inclusion focused primarily on expanding access to banking institutions, credit, savings, insurance and payment services, particularly among populations that had historically remained outside formal financial systems. The emergence of digital finance, fintech, mobile banking, digital payments, blockchain and alternative financing mechanisms has substantially expanded the channels through which financial services can be accessed and used. The literature reviewed in this study demonstrates that this technological transformation has created considerable opportunities for reducing geographical,

transactional and institutional barriers, while simultaneously introducing new challenges associated with digital literacy, financial awareness, trust, cybersecurity and technological inequality (Alhenawi et al., 2022; Banaeian Far et al., 2023; Sanga & Aziakpono, 2023).

The conceptual framework developed in this study identifies **access, awareness and participation** as the three central dimensions of financial inclusion in the digital era. Access represents the foundational condition because individuals and businesses must have the opportunity to obtain appropriate and affordable financial services. Digital technologies can significantly expand such access by reducing dependence on physical financial infrastructure and creating alternative mechanisms for service delivery. Fintech platforms, digital payment systems and technology-enabled financing can potentially extend financial services to underserved populations and businesses. Nevertheless, the existence of a digital financial service does not automatically mean that every individual can effectively access it. Device availability, internet connectivity, affordability and digital capability remain important conditions for meaningful access.

Awareness represents the second major dimension because access without knowledge may result in ineffective or inappropriate participation. The increasing complexity of digital financial products means that users must understand costs, risks, benefits and contractual conditions. Financial literacy and digital literacy therefore need to be considered together. Siddik et al. (2023) demonstrate the relevance of financial literacy within the context of fintech adoption and access to finance, while the behavioural finance literature indicates that financial decisions can also be influenced by cognitive and psychological factors (Badola et al., 2023; Gomes, 2023; Sharma & Kumar, 2019). Consequently, financial inclusion policies should not focus solely on providing technological access but should also strengthen the financial and digital capabilities of users.

Participation represents the third and most outcome-oriented dimension of the framework. Meaningful financial inclusion requires actual and sustained use of financial services for payments, savings, credit, insurance, investment and business financing. An individual who possesses a bank account or digital wallet but rarely uses it may be formally connected to the financial system but not meaningfully included. Participation therefore depends upon the interaction of access, awareness, affordability, trust and perceived usefulness. Research on digital finance and household behaviour provides evidence that participation can influence broader socioeconomic outcomes, including household consumption and bargaining relationships (Han et al., 2023; Hu et al., 2023). Financial inclusion consequently has implications that extend beyond financial transactions and can contribute to wider economic and social participation.

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