

Digital Financial Literacy and Digital Financial Inclusion in the Era of Digital Disruption: Systematic Literature Review

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ABSTRACT

Financial technology in the era of digital disruption has transformed traditional mechanisms of financial services into more efficient. Digital financial literacy has become one of the important digital competencies in order to financial inclusiveness with technology. This article aim to explore publications related to digital financial literacy and digital financial inclusion and their impact regarding economic inequality and financial well-being. This article uses the method of systematic literature review with databases from Scopus from 2020-2024. The results found that digital financial literacy is needed to achieve optimization of digital financial inclusion; adoption of digital financial services has the potential to reduce economic and social disparities; digital financial inclusion can encourage increased financial well-being. The expansion of financial services with technology increases the coverage dimension but there are still barriers in the usage dimension.

INTRODUCTION

The rapid growth of digital technology has affected many elements of human existence. These changes dramatically transform the global environment as well as financial services from traditional ways to more practical (Alam et al., 2019). This technological progress is like a double-edged sword; on the one hand, it makes it easier to use and access financial services, but on the other hand, these changes or disruptions provide new challenges that must be addressed in order to generate optimal benefits (Palmié et al., 2020; L. Shen, 2022). Digital disruption has two elements, namely digital innovation and disruptive innovation (Baiyere & Hukal, 2020). Digital disruption is caused either directly or indirectly by technological developments that offer increased efficiency through innovation, diversification of supply, and more competitive financial systems that can support the expansion of financial inclusion (Tafani, 2023; Vives, 2020) aligned with (Gallego-Losada et al., 2023) claimed that optimization of financial inclusion requires adequate to a range of financial products and services in order to provide basis for social development, such as poverty alleviation, reduction of income disparities and improvement of public welfare. It is also stated that technological advances have great potential for fostering digital financial inclusion. The expansion of digital financial inclusion coincides with the increasing accessibility and availability of formal financial services (Rekha et al., 2022). This makes it easier for underserved communities to acquire financial services via digital technology like mobile money (Mpofu & Mhlanga, 2022; Widyastuti, Respati, & Mahfirah, 2024).

The Covid-19 pandemic effect has significantly changed perspective and lifestyles people in all corners of the world (Tay et al., 2022) which accelerates the transition to a digital economy by changing the financial transaction process to be more flexible by using technology. This undeniably requires good navigation skills in the development of financial technology or in other words emphasizes the importance of every individual acquiring digital financial literacy (Ferilli et al., 2024). Digital financial literacy is defined as an important form of skill that needs to be possessed to make use of financial services and products obtained from digital platforms (OECD, 2022; Ferilli et al., 2024). Digitalization is considered a driver of economic progress in the digital era, with fintech being one example of technological innovation that enables to delivering financial services such as peer-to-peer lending, cryptocurrency, crowdfunding, and e-payment (R. Rahayu, 2022). Technology is preferred over old, rigid systems, as fintech operates smoothly and adapts flexibly to changes in consumer preferences (Vives, 2020). This encourages people to use various digital channels for their financial requirements, potentially contributing to a country's economic growth through daily transactions. (Widyastuti, Respati, & Mahfirah, 2024).

In 2008, the World Bank stated that, presence of various financial services was crucial for MSMEs in generating income, building assets, facilitating consumption, and managing risk (Okello Candiya Bongomin & Ntayi, 2020). However, as the availability and convenience of financial services increase, so do user protection issues, including fraud, which often targets the disclosure of personal information to gain unauthorized access to accounts for profit (Kubilay et al., 2023). In (Blackmon et al., 2021) 56% of digital financial service users in Kenya admitted to being contacted by fraudsters. Users with low educational

backgrounds did not recognize the fraud attempts and had the potential to suffer losses. Therefore, educational actions for users need to be improved to enable them to detect fraud patterns. However (Dinh et al., 2023) stated that efforts to protect users of digital financial services involve not only increasing user awareness but also improving technological infrastructure and the ability to build platforms that do not create asymmetric information for users. In India as a developing country, financial literacy is something that is really needed, because many sectors related to the economy and society are not organized, leading to a lack of synchronization in economic stability, consequently financial literacy is crucial as a foundation for understanding the basic financial problems that modern society must face. (Prasad et al., 2018). While in Indonesia it is based on (OJK, 2022) the index of financial inclusion came in at 85,10%, whereas the financial literacy index was 49,68%. It is necessary to strive for this disparity in numbers to be as minimal as possible. (Sun et al., 2020; Widyastuti, Respati, & Mahfirah, 2024) Financial literacy plays an essential role in encouraging the optimization of digital financial inclusion programs, which will also have an impact on increasing economic growth.

The article's goal is to examine research publications on digital financial inclusion and digital financial literacy. Furthermore, it will provide information on how digital financial literacy, as a digital competency, enhances people's ability to use digital financial services, aiming to optimize financial inclusion and reduce economic and social inequality in the era of digital disruption

LITERATURE REVIEW

Digital Financial Literacy

Digital financial literacy is essential to ensuring economic and financial stability for individuals and the global economy. It helps people navigate the complexities of digital financial services and empowers them to make informed decisions about their finances (Lusardi, 2015; Respati et al., 2023), as in (Prasad et al., 2018) digital financial literacy involves understanding how to use online systems to conduct financial activities, such as online payments and digital banking services. Digital financial literacy includes two basic principles, namely financial literacy and digital literacy as well as complementary elements such as awareness of the risks to be faced and product characteristics. (Widyastuti, Respati, & Mahfirah, 2024). According to (Morgan et al., 2019) Digital financial literacy encompasses numerous characteristics, including; knowledge of digital services and products; digital financial risk management; awareness of digital financial risks and; consumer rights and compensation procedures.

Digital Financial Inclusion

Digital financial inclusion through the application of technology, risk management, and strong supervision contributes to financial stability in a healthy digital economic ecosystem (S. K. Rahayu et al., 2023). Digital financial inclusion refers to the possibility of widespread access to financial services for the general public through the implementation of the principles of digitalization of financial services (Naumenkova et al., 2019). As in (Lauer & Lyman, 2015) Digital financial inclusion interpreted as digital access and utilization of formal

financial services by people who were previously marginalized from traditional financial services, and there are three main elements of digital financial inclusion, including (1) Digital transaction platforms; (2) Retail agents and; (3) Devices, are also explained that digital financial inclusion can reduce the risks that may arise when using traditional financial service models

METHODOLOGY

The method used in this article is the Systematic Literature Review (SLR) and data collected using a qualitative approach. This article will have three research questions based on the empirical explanation in the introduction. First, exploring digital financial literacy in encouraging the effectiveness of digital financial services to improve people's welfare. Secondly, examining the extent to which the adoption of digital financial services contributes to reducing economic and social disparities in society during the era of digital disruption. Thirdly, exploring how digital financial inclusion impacts financial welfare in society during the era of digital disruption.

RESEARCH RESULT

Research Step

The literature search for this article used an approach by (Y. Xiao & Watson, 2019) The process consists of four stages: (1) Identification, at this stage, a search for data sources from Scopus began using the keywords "digital financial literacy" AND "digital finance," resulting in a total of 1150 articles. The author conducted research on 1 Maret 2024 and selected articles based on predetermined inclusion criteria, including those published from 2020 to 2024 this process yielded 218 articles; (2) *Screening*, In this second stage, the author reviews articles from the previous process based on the title and abstract. In this process, 116 articles were found and 25 studies were excluded because their journal had discontinued status from Scopus, resulting in 91 articles; (3) *Eligibility*, after skimming the entire text to determine the suitability of the articles, 44 articles were found that did not focus on the topic to be discussed, and 12 articles had limitations that could not be accessed by the author, consequently 35 articles were obtained and (4) *Inclusion*, total of 35 articles were ready to be analyzed to answer the determined research questions.

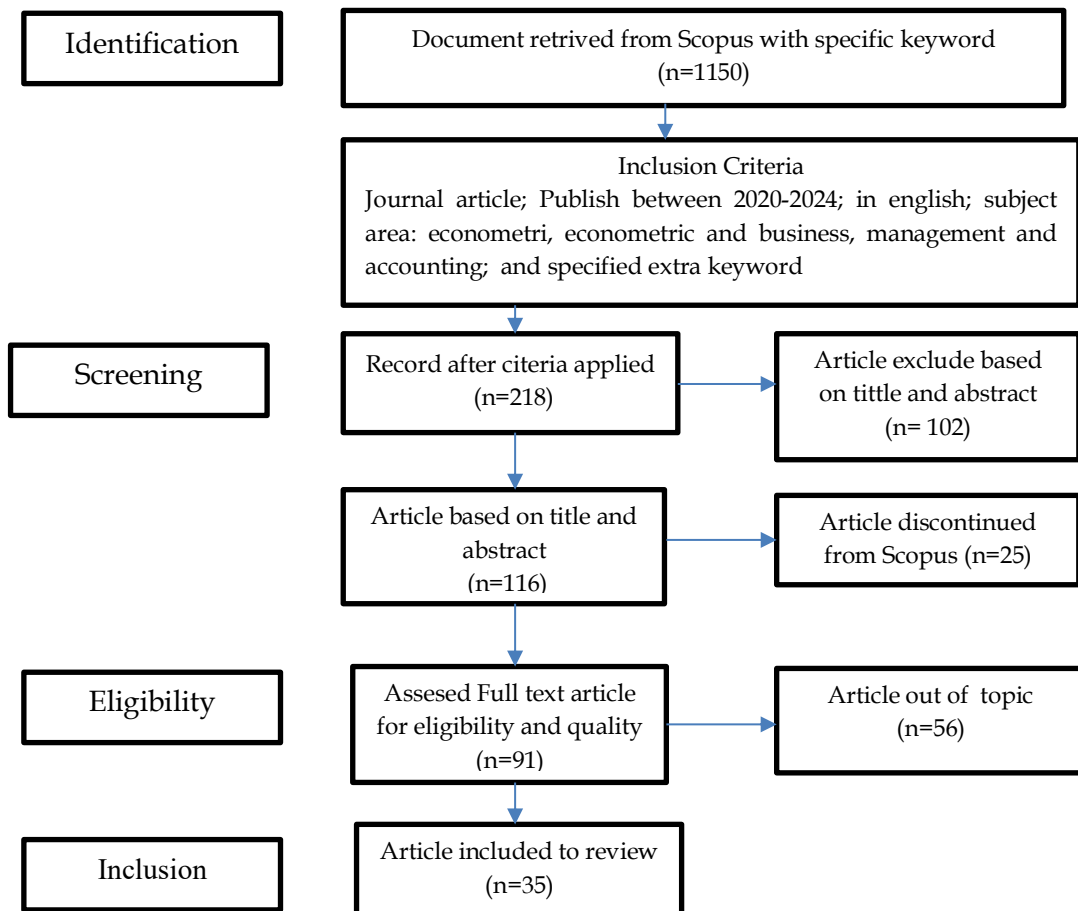


Figure 1. Systematic Literature Review Procedure

Result

Based on the process that has been carried out, four categories have been identified for discussing the determined problem formulation.

Table 1. Article Categories

Kategori	Item	Literature
Digital Financial Literacy	18	(Adnan et al., 2023; Andreou & Anyfantaki, 2021; Asyik et al., 2022; Atangana Ondo et al., 2023; Buenestado-Fernández et al., 2023; Choung et al., 2023; Ferilli et al., 2024; Hasan et al., 2023; Kumar et al., 2023; Lo Prete, 2022; Nurkholik, 2024; S. K. Rahayu et al., 2023; Respati et al., 2023; Sari et al., 2023; Setiawan et al., 2022; Widyastuti, Respati, & Mahfirah, 2024; Widyastuti, Respati, Dewi, et al., 2024; Yang et al., 2023)
Digital Financial Inclusion	9	(Al-Smadi, 2023; Asif et al., 2023; de Moraes et al., 2023; Lee et al., 2023; Lei et al., 2023; Liu et al., 2023; Monye, 2024; Ozturk & Ullah, 2022; Zheng, 2023)
Scam and Protection	3	(Dinh et al., 2023; Kubilay et al., 2023; Okello Candiya Bongomin & Ntayi, 2020)
Technology	5	(Agwu, 2020; Niu et al., 2022; Parvathy & Kumar, 2022; Y. Shen et al., 2020; N. Xiao et al., 2023)

This article focuses on digital financial literacy and digital financial inclusion in the era of rapid technology. It explores how factors such as the adoption of financial services evolving towards digitalization will enhance digital financial inclusivities, consequently contributing to sustainable economic growth.

DISCUSSION

Digital Financial Literacy on the Effectiveness of Digital Financial Services

The development of digital technology has changed the financial industry significantly from traditional mechanisms to more effective and efficient ones, requiring digital skills to use new products, services, and technology because a lack of digital financial literacy will hinder the effectiveness of this modernization. Digital financial literacy is the indispensable skill to use financial products and services through digital channels (Choung et al., 2023; Ferilli et al., 2024). In several studies conducted by (Andreou & Anyfantaki, 2021; Asyik et al., 2022; Hasan et al., 2023; Sari et al., 2023; Widyastuti, Respati, & Mahfirah, 2024; Yang et al., 2023) It shows that digital financial literacy influences financial inclusion, where the level of knowledge and proficiency affects the frequency of use of digital financial services. Financial inclusion also indicates that society uses access to financial services well and smoothly (Sari et al., 2023).

Digital financial literacy is crucial component in the success of financial inclusion programs in various countries. There are two underlying concepts exist: digital literacy and financial literacy (Widyastuti, Respati, Dewi, et al., 2024). Based on (Nurkholik, 2024; Yang et al., 2023) adequate financial literacy can significantly increase the use of digital financial services, which include mobile payments, online loans, and other digital financial products. Based on (Respati et al., 2023) Digital financial literacy influences a person's financial behavior by enabling them to manage their finances in the middle of the rapid development of digital financial services. Also mentioned in (Kumar et al., 2023) Digital financial literacy is a predictor of a person's financial decision-making, so that, the increased use of digital tools and platforms in financial services will become more optimal when digital and financial literacy abilities tend to be higher (Lo Prete, 2022). As for research (Yang et al., 2023) financial literacy plays an important role in promoting the use of online loans and inline financial products compared to mobile payments.

Digital financial literacy abilities are influenced by socio-economic status, such as income and education. The higher the education and income, the higher a person's understanding of carrying out activities related to digital financial services (Setiawan et al., 2022). There is a need to educate the public about useful financial products and services so that people are not easily deceived by irresponsible parties because financial literacy programs can serve as a solution to the financial crisis. (Asyik et al., 2022), to achieve better financial inclusion, as mentioned in (Buenestado-Fernández et al., 2023) the younger generation has understood the need for digital financial education, such as the use of mobile applications, digital financial security and, online financial operations. This awareness has become especially prominent in Malaysia during the post-Covid-19 pandemic period, coinciding with a high level of bankruptcy among young people, indicating poor financial management knowledge (Adnan et al., 2023).

Furthermore, although digital financial literacy encourages progress in digital inclusion for all genders, women get more benefits, because they are more active in using digital financial services (Hasan et al., 2023; Widyastuti, Respati, & Mahfirah, 2024). Financial service users with minimal levels of financial knowledge and lacking confidence in digital skills more frequently express dissatisfaction with the digital financial services provided (Andreou & Anyfantaki, 2021). Moreover, the expansion of digital financial services not accompanied by symmetric information can lead to misunderstandings, leaving users vulnerable to fraud that can be detrimental directly or indirectly (Kubilay et al., 2023) For this reason, user or consumer protection efforts need to be improved.

From the explanation above, it can be concluded that digital financial literacy has indeed become a tangible competency, supported by empirical evidence. This competency can be further enhanced to optimize people's ability to utilize technology-based financial services and access symmetrical information. It is hoped that this improvement will lead to increased financial inclusion and support community welfare in this era of digital disruption.

Adoption of Digital Financial Services in Overcoming Economic and Social Disparities

Digital financial services demonstrate their ability to reach individuals who lack access to traditional financial mechanisms. The financial sector has seen various innovations, including mobile banking, online financial management products, peer-to-peer lending, advanced trading platforms, and automated portfolio managers (robo-advisors) (Yang et al., 2023). One known barrier to future poverty alleviation is the incapacity of certain groups of individuals to engage in the official economic system (Asif et al., 2023). The adoption of digital financial services can reduce income gaps more effectively compared to traditional financial services. Additionally, this shift creates efficiency for banks in expanding financial access, as opposed to relying solely on physical methods such as building branches and ATMs (de Moraes et al., 2023), thus, financial institutions can reach a wider audience by providing digital services that are available through computers, cellphones, and other electronic devices. This combination has the potential to significantly increase financial inclusion (Niu et al., 2022). Global human development is positively influenced by technological advancement. Also, digital finance contributes positively to technological progress, as advancements in trade liberalization tend to accelerate technological innovation (N. Xiao et al., 2023). Even though digital financial services have become phenomenal, the issue of consumer protection remains a concern. The main technologies used in mobile phones, security flaws in Unstructured Service Data (USSD) and Short Message Service (SMS) allow for the interception of mobile money transaction (Okello Candiya Bongomin & Ntayi, 2020).

The transition to a digital economy was accelerated by the Covid-19 pandemic, which was characterized by the increased use of digital platforms for financial transactions. (Parvathy & Kumar, 2022) and digital financial services as a platform can increase opportunities to access finance in various fields, However, in several developing countries, there are still obstacles to its

implementation due to limited knowledge about mobile money and poor infrastructure, causing a disparity between rural and urban residents. (Agwu, 2020; Atangana Ondo et al., 2023). The role of the internet is integral to this acceleration, serving as the cornerstone of information and communication technology. Its expansion of broadband infrastructure, particularly in terms of internet speed, significantly promotes digital financial inclusion. However, while it enhances coverage (coverage dimension), its impact on usage remains (usage dimension) limited. Thus, policies aimed at social capital development are considered necessary to address these limitations (Niu et al., 2022), but on (Y. Shen et al., 2020) stated that, internet does not directly mediate financial literacy in financial inclusion, so that financial literacy and the internet can be effective in influencing inclusion, it is necessary to promote the usage of digital financial products.

From the explanation above, a common thread can be drawn that fintech, as financial technology, offers easy access to people who were previously unreachable by traditional financial mechanisms, this access enables them to engage in various money management activities and empowers both individuals and SMEs (Small Medium Enterprise) to initiate new businesses, thereby contributing to economic growth. The transition to this mechanism accelerated rapidly after the COVID-19 pandemic and was supported by the commitment of policymakers to enhance broadband infrastructure (internet speed), on the other side, there are limitations in terms of usage dimension and consumer protection, thus policymakers need to develop social capital policies and enhance financial literacy to address them. solutions fintech innovation have the potential to bridge economic and social gaps, offering new pathways to prosperity.

The Impact of Digital Financial Inclusion on Financial Well-Being

Financial inclusion is crucial for fostering a robust digital economic ecosystem and enhancing financial stability. This is achieved through the application of technology to risk management and financial supervision (S. K. Rahayu et al., 2023). Financial inclusion is also a step toward achieving financial development by providing financial services to the most people in society. When financial inclusion increases, greater number of individuals can access financial services and become part of the financial structure in a modern economy (Ozturk & Ullah, 2022). In research (Zheng, 2023) the impact of digital financial inclusion has a positive influence on institutional innovation and efficiency. By utilizing technology to track funds, digital financial inclusion lowers loan thresholds and increases access to financing for individuals who previously faced difficulties due to high threshold limits. This convenience ensures easy access, availability and use of the formal financial system for every participant in the economy (Al-Smadi, 2023).

Based on (Lee et al., 2023) Digital financial inclusion has a significant role in reducing poverty process because it is able to provide sustainable, independent economic capacity building for poor communities. This cannot be separated from the role of fintech in significantly helping financial inclusion. Research result from (Monye, 2024) stated that, the existence of fintech in Nigeria does not eliminate the craze for using cash as a means of payment because cash is considered to have minimal vulnerability in terms of hacking and is free of

credit risk, as is the case with digital payment systems, that can certainly be understood, but if aiming for a transition towards digital inclusivity, it requires policies that adapt to the local community's mindset. In (Asif et al., 2023) the expansion of digital financial services can be indicated by an increase in bank account ownership. As a supplement to understanding the level of account ownership based on gender, income, and education in developing countries, it is as follows:

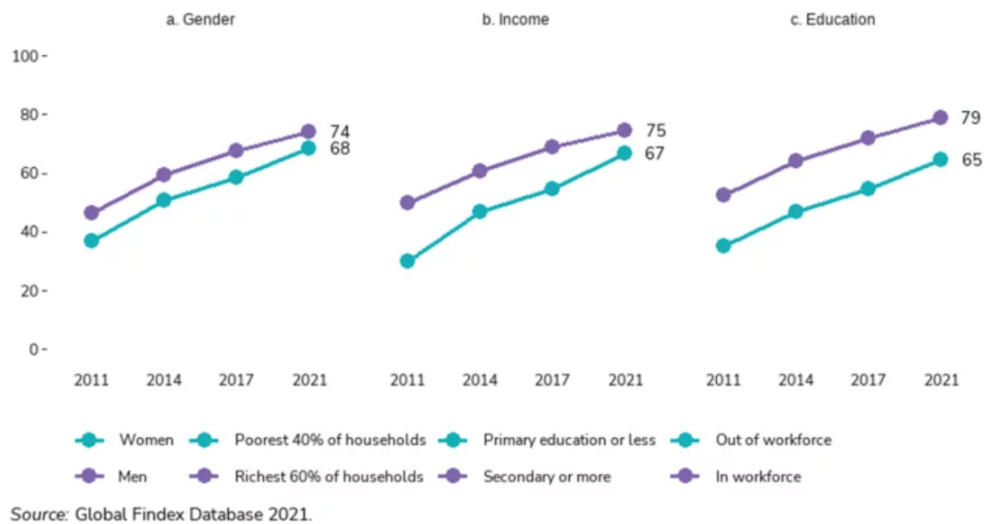


Figure 2. Account Ownership in Developing Economies by Gender, Income, and Education

The image above, apart from showing the range of inclusion which has increased based on bank account ownership, it can also be seen that higher education and income levels indicate greater awareness of the benefits of utilizing superior financial services. Financial well-being refers to a person's ability to meet basic needs, manage finances, invest, and have access to necessary services (Liu et al., 2023; Respati et al., 2023). Based on (Lei et al., 2023; Liu et al., 2023) it is clear that digital financial inclusion plays a role in fostering financial prosperity and narrowing the income gap between urban and rural areas, this depicts that broadening access to financial services through technology within communities can enhance financial management. It enables access to various financial products such as credit or insurance, as well as opportunities for investment and business development, even for those living in rural areas. On the other hand, in research (Lei et al., 2023) digital financial inclusion also has an impact on subjective well-being, which greatly lessens depressive symptoms and enhances general wellness, especially among the elderly in rural areas.

From the explanation above, it can be inferred that digital financial inclusion has the potential to improve financial welfare by increasing access to financial services, reducing uncertainty through better risk management, and taking advantage of more opportunities to start and develop a business.

CONCLUSIONS AND RECOMMENDATIONS

In the era of digital disruption, advances in financial technology offer easy access to financial services for people who are not reached by conventional financial mechanisms. In this research, uses systematic literature review method to examine previous research related to digital financial literacy and digital financial inclusion in the era of disruption by articles published in Scopus from 2020 to 2024.

This research finds to answer the research question, *first*, digital financial literacy is one of the digital competencies that should be possessed or actively improved to optimize the functions of various forms of digital financial services provided to achieve comprehensive financial inclusion thereby contributing to prosperity. *Second*, the presence of digital financial services serves as a determinant in reducing economic and social disparities for communities previously marginalized by traditional mechanisms, enabling them to thrive. The adoption of digital financial services expands financial access in terms of coverage, supported by continuously accelerating broadband infrastructure. However, there are still barriers in terms of usage, such as the risks of fraud and data security. Therefore, strong financial literacy and digital literacy, as well as the development of adequate social capital, are necessary to minimize these risks. *Third*, digital financial inclusion through financial technology (fintech) was found to have the potential to improve financial welfare because it provides many opportunities for people to empower themselves and start businesses with the various conveniences provided

ADVANCED RESEARCH

Considering the result of the review above, it emphasizes the importance of digital financial literacy as the initial foundation for optimizing various developments in financial services with technology. This refers to better digital financial inclusiveness, which leads to reduced economic inequality and increased community financial welfare, In future research, there can be more emphasis on exploring programs to be implemented and their effectiveness in optimizing digital financial literacy. Additionally, there is a need to explore the impact of digital financial inclusion on other aspects of subjective well-being, such as psychological well-being and life satisfaction.

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