

Digital Finance, Financial Inclusion, and Sustainable Economic Development: A Systematic Literature Review

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ABSTRACT

Digital transformation has changed various aspects of economic activity, including the financial sector which is experiencing rapid development through the use of digital finance. This study aims to analyze the relationship between digital finance, financial inclusion, economic productivity, and sustainable economic development through the Systematic Literature Review (SLR) approach. Research data was obtained from various scientific articles, academic books, and reports of international institutions published in the last five years. The analysis process is carried out through identification, selection, evaluation, and synthesis of literature relevant to the research theme. The results of the study show that digital finance contributes to increasing financial inclusion through expanding public access to formal financial services. In addition, digital finance also encourages increased economic productivity through transaction efficiency, ease of access to financing, and strengthening entrepreneurial activities. The findings of the study also show that digital finance has an important role in supporting sustainable economic development through improving energy efficiency, green productivity, and equitable distribution of economic opportunities. However, challenges such as digital literacy, data security, technological infrastructure, and regulations still need to be considered to optimize the benefits of digital finance in supporting inclusive, productive, and sustainable economic development.

Keywords: *Digital Finance, Digital Transformation, Economic Productivity, Financial Inclusion, Sustainable Development.*

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1. | INTRODUCTION

Digital transformation has been one of the main drivers of changes in the global economic structure in the last decade. The development of information and communication technology has accelerated the integration of various economic activities into a more efficient, inclusive, and connected digital ecosystem. One form of transformation is the development of digital finance, which includes various technology-based financial services, such as digital payments, digital loans, digital investments, and various financial technology (fintech) innovations. The presence of digital finance not only changes the way people access financial services but also has the potential to improve the efficiency of the overall economic system through reducing transaction costs, increasing access to information, and expanding the reach of financial services to groups that have not been optimally served (Financial Stability Board, 2019).

The development of digital finance is also closely related to efforts to increase financial inclusion. Financial inclusion is seen as one of the important factors in driving more equitable economic growth because it allows people to gain access to secure and affordable formal financial services. The Global Findex report shows that the increased use of digital payments has contributed to the expansion of financial access in various countries, especially through the use of mobile devices and the internet as a medium of financial transactions (Demirgüç et al., 2021). This condition shows that the digitalization of the financial sector can be a strategic instrument in reducing financial access barriers that have been faced by certain community groups.

In addition to supporting financial inclusion, digital finance also contributes to increasing economic productivity. The use of digital technology allows economic actors to conduct transactions faster, more transparently, and more efficiently. Digitization of financial services can help businesses gain easier access to financing to support business expansion, innovation, and increased competitiveness. In a broader context, advances in digital technology can create a multiplier effect on economic growth through increased productivity of factors of production and efficiency of resource allocation (Adeleye et al., 2022).

Various previous studies have proven that digital finance has a positive influence on economic development. Morgan (2022) explains that fintech plays an important role in expanding financial inclusion and increasing people's access to formal financial services. Similar findings were also put forward by Demir et al. (2022) who showed that the development of fintech contributes to a reduction in income inequality through increased access to people's finances. Meanwhile, Zhao et al. (2021) found that digital finance also has implications for sustainability aspects through its influence on resource use efficiency and carbon emission reduction.

However, the relationship between digital finance and sustainable economic development still requires a more comprehensive study. Most previous research has

focused on the direct relationship between digital finance and financial inclusion or between digital finance and economic growth. Studies that integrate the role of digital finance, productivity increase, and sustainable economic development in a single conceptual framework are still relatively limited. In addition, the results of research on the impact of digital finance on economic equity also show diverse findings, so a more in-depth literature synthesis is needed to understand the mechanisms underlying these relationships.

Another research gap lies in the dominance of discussions about the benefits of digital finance compared to the challenges that come with it. Various issues such as digital literacy, data security, consumer protection, and regulatory readiness are still important factors that determine the success of digital transformation in the financial sector. Beirne and Fernandez (2023) emphasized that the balance between innovation and regulation is one of the main challenges in ensuring that the development of digital finance is able to support sustainable economic development.

Based on this background, this study aims to systematically examine the relationship between digital finance, financial inclusion, economic productivity, and sustainable economic development based on various empirical findings published in the last five years. This study is expected to provide a more comprehensive understanding of the contribution of digital finance to economic development as well as identify various opportunities and challenges that need to be considered in the development of economic policies based on digital transformation.

2. | LITERATURE REVIEW

Digital Finance and Financial Inclusion

Digital finance is the use of digital technology to provide various financial services that are faster, more efficient, and more accessible to the public. The development of information technology has enabled the emergence of various innovations such as digital payments, online loans, electronic wallets, and digital investment platforms that have changed the pattern of people's interaction with the financial sector (Agarwal & Zhang, 2020). The presence of digital finance is one of the important instruments in encouraging financial inclusion because it is able to reduce geographical, administrative, and cost barriers that have been limiting people's access to formal financial services (Financial Stability Board, 2019).

The concept of financial inclusion refers to the condition when individuals and business actors have adequate access to quality, affordable, and sustainable financial products and services. In recent years, the digitalization of the financial sector has accelerated the expansion of such access through the use of mobile devices and internet networks. The Global Findex report shows that the increased use of digital payments contributes significantly to the expansion of formal financial account ownership and the increase in people's transaction activities (Demirgüç-et al., 2021).

Morgan (2022) explained that fintech has a strategic role in reaching community groups that were previously not served by conventional financial institutions. In addition, Cavoli and Shrestha (2021) emphasized that financial inclusion is an important factor in supporting economic development because it allows people to gain access to savings, credit, insurance, and other financial instruments. The findings of Demir et al. (2022) also show that increased access to digital financial services has the potential to reduce income inequality through expanding economic opportunities. Thus, digital finance can be seen as a key catalyst in strengthening financial inclusion which ultimately supports more inclusive and sustainable economic growth.

Digital Finance and Economic Productivity

Economic productivity reflects the ability of an economic system to produce output efficiently through the use of available resources. In the era of digital transformation, digital finance is one of the factors that contributes to increasing productivity through simplifying transaction processes, accelerating access to financing, and reducing operational costs. The use of digital technology allows economic actors to obtain financial services faster and more flexibly than conventional mechanisms, thereby encouraging the efficiency of economic activities.

Adeleye et al. (2022) explain that the adoption of digital technology has a positive relationship with economic growth because it is able to improve the efficiency of resource use and accelerate the innovation process. In the context of the financial sector, the development of fintech also plays a role in reducing barriers to accessing financing that are often faced by business actors, especially small and medium enterprises. Hossain et al. (2023) show that digital-based financing models are able to reduce transaction costs while increasing the effectiveness of credit risk assessment, thereby expanding access to productive financing.

Lyu et al. (2023) found that fintech contributes to reducing corporate financing constraints through the reduction of information asymmetry between providers and fund users. Meanwhile, Xie et al. (2022) show that digital finance can increase company productivity through reducing financing costs and increasing operational efficiency. Zhao et al. (2023) also stated that the development of the digital economy has a positive impact on entrepreneurial activities, which are one of the important sources of increasing economic productivity. Therefore, digital finance not only functions as a means of financial transactions but also as an instrument that supports increasing productivity and economic competitiveness more broadly.

Digital Finance and Sustainable Economic Development

Sustainable economic development is a development approach that aims to achieve long-term economic growth while still paying attention to social and environmental aspects. In this context, digital finance is seen as one of the innovations that can support the achievement of sustainable development goals through increasing economic

efficiency, expanding access to finance, and strengthening more inclusive economic activities. The development of financial technology allows people and business actors to gain access to various services that were previously difficult to reach, thus having the potential to strengthen economic welfare in a sustainable manner.

Beirne and Fernandez (2023) explained that digital finance is closely related to the sustainable development agenda because it is able to encourage more inclusive economic growth while improving the efficiency of the financial system. Zhao et al. (2021) found that digital finance contributes to the reduction of carbon emissions through increased economic efficiency and the use of more environmentally friendly technologies. In addition, Shen et al. (2023) show that digital financial inclusion can increase green productivity in the economic sector through easy access to finance and support for sustainability-oriented innovations.

The relationship between digital finance and sustainability is also seen in improving energy efficiency. Wu et al. (2023) found that the development of digital finance contributes to improving energy efficiency through strengthening technology investment and innovation. On the other hand, Chen and Guo (2023) show that the development of the digital economy and the financial sector is able to encourage the improvement of the quality of public consumption towards more value-added consumption patterns. Thus, digital finance not only plays a role in improving economic performance, but also becomes an instrument that supports more inclusive, productive, and sustainable development.

3. | RESEARCH METHOD

This study uses a Systematic Literature Review (SLR) approach to identify, evaluate, and synthesize various research findings related to the relationship between digital finance, financial inclusion, economic productivity, and sustainable economic development. The SLR method was chosen because it is able to provide a comprehensive overview of the development of research on a particular topic through a systematic, transparent, and replicable literature search process. In addition, this approach allows researchers to integrate various research results from different contexts, methods, and research objects so as to produce a deeper understanding of the phenomenon being studied.

The data sources in this study come from various scientific articles, reports of international institutions, academic books, and research publications that are indexed by Google Scholar and published in the last five-year period. The selection of the time range was made to ensure that the literature used is able to represent the latest developments regarding digital transformation in the financial sector and its implications for economic development. The selected literature includes research that discusses fintech, digital finance, financial inclusion, economic productivity, sustainable development, digital economy, as well as various issues related to regulations and challenges in the implementation of financial technology.

The literature collection process is carried out through several stages. The first stage is the identification of articles using keywords such as "digital finance", "financial inclusion", "fintech", "digital economy", "economic productivity", and "sustainable development". The second stage is the screening process based on the relevance of the title, abstract, and content of the article to the focus of the research. The third stage is the assessment of the feasibility of the source by considering the quality of the publication, the suitability of the topic, and its relevance to the research objectives. Furthermore, articles that meet the inclusion criteria are analyzed in depth to obtain information about the concepts, empirical findings, research approaches, and policy implications produced.

Data analysis was carried out using a descriptive-qualitative approach through content analysis techniques. Each selected literature is classified based on the main theme, namely digital finance and financial inclusion, digital finance and economic productivity, and digital finance and sustainable economic development. The results of the analysis are then synthesized to identify patterns of findings, similarities and differences in research results, as well as research gaps that still require further study. Through this approach, this research is expected to be able to provide a more systematic understanding of the contribution of digital finance to sustainable economic development while producing a conceptual framework that can be the basis for future research and policy development.

4. | RESULTS

The results of the literature review show that the development of digital finance has become one of the important factors influencing the transformation of the modern economy. These changes are marked by the increasing use of digital technology in various financial activities, ranging from payment systems, financing, investment, to risk management. The presence of digital finance allows transactions to be carried out faster, more efficiently, and flexibly compared to the conventional financial system. In the context of economic development, these developments create new opportunities to expand access to financial services to the public while improving the efficiency of overall economic activities. The Financial Stability Board (2019) explained that financial technology innovations have changed the structure of the financial services market through increased operational efficiency, expanded access to services, and the emergence of new business models that are more adaptive to people's needs.

One of the most consistent findings in various studies is the contribution of digital finance to increasing financial inclusion. Digital transformation allows people to gain access to financial services without having to rely on the physical office of financial institutions. The ease of use of mobile devices and the internet has accelerated the adoption of digital financial services in various groups of people. The findings of Demirgüç-et al. (2021) show that the use of digital payments contributes to increased ownership of formal financial accounts and encourages public participation in the

financial system. These developments show that digital finance is able to reduce geographical and administrative barriers that have been the cause of low levels of financial inclusion.

Increasing financial inclusion has far-reaching implications for people's economic activities. Cavoli and Shrestha (2021) explain that access to formal financial services allows individuals and business actors to obtain various facilities that support economic activities, including savings, credit, insurance, and safer payment instruments. Through this access, people have a greater opportunity to increase productive capacity and expand their economic activities. In the long run, this condition contributes to improved welfare and more inclusive economic growth.

The results of the study also show that fintech as part of digital finance has a strategic role in expanding access to finance. Morgan (2022) emphasized that fintech is able to reach community groups that previously found it difficult to obtain services from conventional financial institutions. The use of digital technology allows financial service providers to offer products that are cheaper, faster, and more accessible. These findings strengthen the argument that digital finance not only functions as a technological innovation, but also as an instrument that supports equitable economic access.

In addition to increasing financial inclusion, digital finance also contributes to reducing economic inequality. Demir et al. (2022) found that the increased use of fintech is related to a decrease in income inequality through expanding people's access to financial services. As individuals and businesses gain easier access to financing and other financial instruments, the opportunity to increase revenue and productivity becomes greater. However, several studies show that the benefits of digital finance are not always felt equally because there are still differences in the level of digital literacy, infrastructure quality, and economic ability between community groups.

Digital finance also has a close relationship with increasing economic productivity. The results of the study show that the use of digital technology is able to speed up the transaction process, reduce operational costs, and improve the efficiency of resource management. Adeleye et al. (2022) explain that the adoption of digital technology contributes to economic growth through increased efficiency and acceleration of innovation. In this context, digital finance is an important part of the digital transformation process that encourages increased productivity in various sectors of the economy.

The role of digital finance in increasing productivity is also seen through its ability to reduce financing obstacles faced by business actors. Hossain et al. (2023) show that digital-based financing models can improve credit disbursement efficiency through the use of more sophisticated data and analytics technologies. This mechanism helps to lower transaction costs while speeding up the risk assessment process so that access to financing becomes wider. This condition is very important for business actors who need capital to develop productive activities.

Similar findings were also put forward by Lyu et al. (2023) which showed that fintech is able to reduce corporate financing barriers through a reduction in information asymmetry between providers and fund users. Digital technology allows for more effective collection and processing of information, thereby improving the accuracy of creditworthiness assessments. With reduced financing constraints, companies have greater opportunities to expand their businesses, increase investment, and develop innovations that support productivity.

Furthermore, Xie et al. (2022) found that digital finance contributes to increased corporate productivity through reduced financing costs and increased operational efficiency. Easy access to financing sources allows companies to allocate resources more optimally. At the same time, the use of digital technology also helps companies improve the quality of decision-making through faster and more accurate access to information.

Digital finance not only has an impact on company productivity, but also encourages entrepreneurial development. Zhao et al. (2023) show that the development of the digital economy has a positive influence on entrepreneurial activities through increased access to information, business networks, and sources of financing. Entrepreneurship that develops sustainably is ultimately one of the driving forces for economic growth and job creation.

From the perspective of sustainable development, the results of the study show that digital finance has an increasingly significant contribution. Beirne and Fernandez (2023) explain that digital finance can support the achievement of sustainable development through increasing financial inclusion, economic productivity, and financial system efficiency. This relationship shows that digital transformation in the financial sector not only impacts the economic aspect, but also has broader social and environmental implications.

Zhao et al. (2021) found that digital finance has an influence on reducing carbon emissions through increasing economic efficiency and using more environmentally friendly technology. These results show that digital finance innovation can be part of a development strategy that supports environmental sustainability. The digitalization of financial processes allows for the reduction of the use of certain resources while increasing the effectiveness of economic activities.

The contribution of digital finance to sustainability is also seen in increasing green productivity. Shen et al. (2023) found that digital financial inclusion plays a role in increasing sustainability-oriented productivity through easy access to finance and support for innovation. Access to a wider range of financing sources allows economic actors to invest in more efficient and environmentally friendly technologies.

Meanwhile, Wu et al. (2023) show that the development of digital finance has a positive relationship with improving energy efficiency. Digital technology allows the production process and resource management to be carried out more effectively so that it can reduce energy waste. These findings show that digital finance has a contribution

that is not only limited to the financial sector, but also supports economic efficiency more broadly.

In addition to the production aspect, economic digitalization also affects people's consumption patterns. Chen and Guo (2023) explain that the development of the digital economy and the financial sector encourages an improvement in the quality of consumption towards products and services that have higher added value. These changes in consumption patterns reflect an increase in welfare while showing that digitalization can encourage a gradual transformation of economic structures.

Although the various benefits of digital finance have been widely proven in the literature, the results of the study also show that there are a number of challenges that need to be considered. Ehrentraud et al. (2020) emphasized the importance of regulations that are able to maintain a balance between innovation and financial system stability. In addition, issues of digital literacy, data security, consumer protection, and technology access gaps are still obstacles that can affect the effectiveness of digital finance implementation. Therefore, the success of digital transformation is not only determined by technological developments, but also by the readiness of institutions, regulations, and the capacity of the community to utilize the technology optimally.

The results of the study show that digital finance has a significant role in expanding financial inclusion, increasing economic productivity, supporting entrepreneurship, reducing economic inequality, and strengthening sustainable economic development. However, these benefits can only be achieved optimally if they are supported by adequate digital infrastructure, good literacy levels, and regulatory frameworks that are able to accommodate technological developments without neglecting aspects of economic protection and stability.

5. | DISCUSSION

The results of the literature review show that digital finance has an increasingly strategic role in supporting modern economic transformation. These findings reinforce the view that the digitalization of the financial sector no longer only serves as a means of improving transaction efficiency, but has evolved into an instrument capable of influencing various dimensions of economic development. One of the main findings in this study is the strong relationship between digital finance and increased financial inclusion. Various studies show that digital financial technology is able to reduce barriers to access to formal financial services through the provision of easier, faster, and more affordable services (Morgan, 2022; Demirgüç-et al., 2021). The findings also confirm that digital finance can be an effective mechanism to expand public participation in formal economic activities.

This study also shows that increasing financial inclusion not only has an impact on access to financial services, but also contributes to increasing economic productivity. Wider access to financing allows businesses to increase production capacity, expand investment, and develop innovations that support economic growth. These findings strengthen the argument that digital finance plays a role as a factor supporting

productivity through reducing transaction costs, increasing efficiency, and expanding access to economic resources (Adeleye et al., 2022; Hossain et al., 2023). Thus, the research gap that states that the relationship between digital finance, productivity, and sustainable economic development is still limited can begin to be explained through a synthesis of literature that shows the relationship between these components.

In addition, the results of the study show that the benefits of digital finance are not only limited to the economic aspect, but also include the sustainability dimension. Findings from several studies show that digital finance contributes to improving energy efficiency, reducing carbon emissions, and strengthening sustainability-oriented productivity (Zhao et al., 2021; Wu et al., 2023). These results support the view that digital finance can be one of the instruments that help achieve sustainable development goals through mechanisms to increase economic efficiency and innovation. Thus, digital finance can be understood as a link between economic growth and sustainability, which has often been seen as two goals that run separately.

However, this study also found that the positive impact of digital finance does not always take place automatically and evenly. There are still various challenges that can affect the effectiveness of its implementation, such as digital literacy gaps, limited technology infrastructure, data security, and consumer protection. These findings are in line with the views of Ehrentraud et al. (2020) who emphasize the importance of an adaptive regulatory framework to manage the risks arising from digital financial innovation. In addition, Beirne and Fernandez (2023) emphasized that the success of digital finance is highly dependent on the ability of policymakers to create a balance between innovation and financial system stability.

Overall, the results of this study show that digital finance has great potential in supporting more inclusive, productive, and sustainable economic development. However, optimizing these benefits requires adequate regulatory support, increasing people's digital literacy, and developing more equitable technology infrastructure. Therefore, digital transformation in the financial sector needs to be seen as a process that is not only oriented towards technological innovation, but also on the creation of an economic system that is able to provide broad benefits to society and long-term development.

6. | CONCLUSION

This study aims to examine the relationship between digital finance, financial inclusion, economic productivity, and sustainable economic development through a Systematic Literature Review approach to various publications published in the last five years. The results of the study show that digital finance has developed into one of the important instruments in supporting economic transformation through increasing public access to financial services, increasing transaction efficiency, and expanding economic opportunities for various community groups.

The findings of the study show that digital finance contributes significantly to increasing financial inclusion through the provision of easier, faster, and more affordable services. The increase in financial inclusion further encourages economic productivity by expanding access to financing, supporting entrepreneurial activities, and improving the efficiency of resource management. In addition, digital finance also has a role in supporting sustainable economic development through improving energy efficiency, strengthening sustainability-oriented productivity, and supporting a more inclusive economic transformation.

However, various challenges still need to be considered, including digital literacy gaps, limited technology infrastructure, data security, consumer protection, and the need for regulations that are adaptive to the development of digital financial innovation. Therefore, optimizing the benefits of digital finance requires synergy between technology development, community capacity building, and policies that support the creation of a safe, inclusive, and sustainable digital ecosystem. Thus, digital finance can be one of the important pillars in encouraging productive, inclusive, and sustainable economic growth in the future.

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The authors declare that there is no conflict of interest.

Ethical Approval and Originality Statement

Ethical approval was obtained for this study. The manuscript represents original work and has not been previously published, nor is it under consideration by another journal.

Data Disclosure Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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