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Digital Financial Inclusion, Technology Adoption, and Economic Performance

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ABSTRACT

Digital transformation has significantly reshaped economic activities, particularly within the financial sector. The advancement of digital technologies has expanded access to financial services, contributing to greater financial inclusion and economic efficiency. This study aims to examine the relationship between digital financial inclusion, technology adoption, and economic performance based on empirical findings published over the last five years. The study employs a library research method with a descriptive qualitative approach. Data were collected from scholarly journal articles, working papers, and reports issued by international institutions relevant to the research topic. The analysis was conducted through the identification, selection, and synthesis of previous studies to explore patterns of relationships among variables and identify existing research gaps. The findings indicate that digital financial inclusion and technology adoption generally contribute to improved financial access, transaction efficiency, productivity, and business opportunities. However, several studies also reveal potential risks, including increased financial vulnerability when the expansion of digital services is not supported by effective governance and risk management. Therefore, successful digital transformation requires adequate regulation, financial literacy, and institutional readiness to promote inclusive and sustainable economic growth.

Keywords: *Brand Trust, Customer Retention, Economic Performance, Perceived Ethicality, Sustainable Skincare Branding.*

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1. | INTRODUCTION

The development of digital technology has been one of the main factors driving the transformation of the global economy in recent years. Digitalization not only changes production and distribution patterns, but also expands people's access to various economic and financial services. The development of the internet, mobile devices, and financial technology innovations have created various services that allow people to make transactions faster, more efficiently, and more inclusively. This phenomenon encourages the emergence of the concept of the digital economy which increasingly plays a role in increasing economic activity and expanding public participation in the formal financial system (Kuznetsov et al., 2020).

The digital transformation that has occurred in the financial sector has given birth to various forms of technology-based financial services that are able to reach community groups that have not previously had access to formal financial services. The presence of financial technology, digital payments, mobile banking, and various other digital financial platforms has accelerated the process of financial inclusion in many developing and developed countries. According to Khera et al. (2022), digital financial inclusion plays an important role in expanding people's access to financial services through the use of digital technology. In line with this, Banna and Alam (2021) explain that increasing digital financial inclusion has the potential to encourage sustainable economic development through increased access to financing and financial system efficiency.

From an economic perspective, increasing financial inclusion and technology adoption is believed to be able to create higher efficiency, increase productivity, and expand people's economic opportunities. The adoption of digital technology allows economic actors to gain better access to information, speed up the transaction process, and reduce operational costs. Research by Dell Gaudio et al. (2021) shows that the diffusion of information and communication technologies contributes to improving the efficiency of the financial sector. Meanwhile, Vo and Nguyen (2021) found that increased financial inclusion contributes to improving financial sector performance through increased public access to various financial products and services.

Nonetheless, the relationship between financial inclusion, technology adoption, and economic performance is still debated in the literature. A number of studies have found that financial inclusion and digitalization have a positive impact on economic growth, efficiency, and financial system stability. Risman et al. (2021) show that digital finance contributes to increasing financial stability through expanding access to financing. In addition, Ahamed and Mallick (2019) found that higher levels of financial inclusion are positively correlated with financial sector stability in various countries. These findings indicate that digitalization and financial inclusion can be important instruments in driving more inclusive economic development.

On the other hand, some studies show different results. Ozili (2021) explained that increasing financial inclusion can give rise to new risks in the form of increased non-

performing loans, cost inefficiencies, and higher financial risks. Barik and Pradhan (2021) also found that expanding financial inclusion that is not balanced with adequate risk management has the potential to reduce financial stability. Similar findings were put forward by Ariefianto et al. (2022) which show that increased technology adoption and financial inclusion can have a negative impact on stability when measured through credit risk indicators. The difference in the results of the study shows that the influence of financial inclusion and technology adoption on economic performance still does not produce consistent conclusions.

In addition to the inconsistencies in the research results, most of the previous studies focused more on the banking sector, the profitability of financial institutions, and the stability of the financial system. Studies linking digital financial inclusion and technology adoption to broader economic performance are still relatively limited. In addition, most previous studies have also tested the two variables separately, so there have not been many studies that integrate the two in one analytical framework. This condition shows that there is still open research space to enrich the literature on the relationship between digital financial inclusion, technology adoption, and economic performance.

Based on this description, this study aims to analyze the relationship between digital financial inclusion and technology adoption on economic performance based on various empirical findings that have been published in the last five years. This research is expected to provide a more comprehensive understanding of the role of digital transformation and financial inclusion in driving economic development, as well as being a basis for consideration for the formulation of more effective and sustainable economic policies.

2. | LITERATURE REVIEW

Digital Financial Inclusion and Economic Performance

Digital financial inclusion is a condition when people can access and utilize various formal financial services through the support of digital technology. The development of information technology has expanded the reach of financial services so that various groups of people who were previously not served by formal financial institutions can gain access to savings, financing, payments, and investments. The presence of digital financial services is considered to be able to reduce geographical barriers, transaction costs, and information limitations which have been the main obstacles in increasing financial inclusion.

From an economic development perspective, digital financial inclusion has a strategic role because it is able to increase public participation in formal economic activities. Wider access to financial services allows households and business actors to obtain easier sources of financing so that they can increase productivity and business capacity. Khera et al. (2022) explained that digital financial inclusion is an important instrument in expanding access to finance, especially in developing countries that still

face limitations in conventional financial infrastructure. These findings are strengthened by Banna and Alam (2021) who state that increasing digital financial inclusion contributes to financial sector stability and supports sustainable economic development.

Nevertheless, the benefits of financial inclusion do not always produce a uniform impact. Vo et al. (2021) found that a high level of financial inclusion can improve the efficiency of intermediation and strengthen the stability of the financial system, but its effectiveness is strongly influenced by the quality of institutions, regulations, and the level of financial literacy of the community. Therefore, the success of digital financial inclusion is not only determined by the availability of technology, but also by the ability of people to utilize financial services productively and sustainably.

Digital Technology Adoption and Economic Transformation

The adoption of digital technology is the process of utilizing information and communication technology in various economic activities to increase efficiency, productivity, and competitiveness. The development of the internet, mobile devices, cloud computing, and various other digital innovations have changed the way individuals and organizations conduct economic activities. This transformation encourages the creation of new business models that are more flexible, fast, and data-based so that they can increase economic added value.

In the financial sector, digital technology has become a key driver of the change in modern financial services. Various innovations such as mobile banking, internet banking, and financial technology allow transactions to be carried out more efficiently at relatively lower costs. Del Gaudio et al. (2021) found that the deployment of information and communication technology has a positive impact on the efficiency of the financial sector through improved service quality and faster dissemination of information. The results of the study show that technology has great potential in increasing productivity and strengthening economic performance.

Nonetheless, the adoption of technology also presents a variety of new challenges. Risman et al. (2021) explained that the wider use of digital technology can increase the complexity of risk management in the financial system. In addition, Ariefianto et al. (2022) show that increased technology adoption can have negative consequences if not balanced with adequate supervision and risk management. Therefore, the success of digital transformation depends not only on the level of technology adoption, but also on the readiness of institutions, regulations, and human resources to manage the changes that occur. Thus, digital technology needs to be seen as an instrument of economic development that must be supported by effective governance so that its benefits can be optimally felt by all economic actors.

3. | RESEARCH METHOD

This study uses a library research method with a descriptive qualitative approach to examine the relationship between digital financial inclusion, technology adoption,

and economic performance. The literature study method was chosen because it allows researchers to gain a comprehensive understanding of the development of concepts, theories, and empirical findings that have been produced by various previous studies. Through this approach, the research does not collect primary data directly, but rather utilizes various relevant scientific literature sources as the basis for analysis. Literature studies are also considered suitable for identifying trends in research results, finding research gaps, and formulating conceptual synthesis of the phenomena being studied.

The data sources used in this study are secondary data derived from scientific articles, international journals, working papers, reports of international institutions, and other academic publications relevant to the research theme. The literature used is limited to publications in the last five years in order to be able to describe the latest developments related to digital financial inclusion and technology-based economic transformation. This study also uses several articles as a primary reference because it specifically discusses the relationship between financial inclusion, technology adoption, stability, and financial sector performance.

The data collection process is carried out through identification, selection, and review of various literature obtained from academic databases indexed by Google Scholar. The selected literature must meet the criteria of relevance to the research variables, have adequate academic quality, and be published within a predetermined time frame. After the selection process is carried out, all literature is analyzed using content analysis techniques to identify key concepts, patterns of relationships between variables, similarities and differences in research results, and the implications resulting from each study. Furthermore, the results of the analysis were systematically compiled to produce a synthesis that was able to explain the role of digital financial inclusion and technology adoption in supporting economic performance. Through this approach, this research is expected to provide a comprehensive overview of the latest literature developments while generating a deeper understanding of the opportunities and challenges of digital economy transformation.

4. | RESULTS

The results of the literature review show that the development of digital technology has become one of the main factors driving changes in the modern economic structure. The digital transformation that is taking place in various sectors has expanded people's access to information, markets, and financial services, creating new opportunities for increased economic activity. The OECD report (2022) shows that digitalization has increased the efficiency of economic transactions through the wider use of information and communication technology. These findings are in line with the UNCTAD report (2023) which confirms that the digital economy is one of the main drivers of global economic growth because it is able to accelerate market integration and expand public participation in formal economic activities.

One of the most tangible impacts of digital transformation is the increase in financial inclusion through the use of technology. Khera et al. (2022) explained that

digital financial inclusion allows people to gain access to financial services without having to rely on the physical office of financial institutions. The development of digital technology has expanded access to savings, financing, payments, and investments so that previously hard-to-reach groups of people can participate in the formal financial system. This condition provides greater opportunities for people to increase productive economic activities and strengthen household economic resilience.

Increasing financial inclusion also has a positive impact on the efficiency of the financial system. Banna and Alam (2021) found that digital financial inclusion contributes to increasing financial sector stability and supporting sustainable economic development. According to the study, the use of digital technology allows financial institutions to reach more users at a relatively lower cost than conventional services. This efficiency creates opportunities for increased financial intermediation which is ultimately able to encourage the growth of economic activity.

Other findings suggest that technology adoption has a significant contribution to improving the quality of financial services. Del Gaudio et al. (2021) found that the deployment of information and communication technology improves the ability of financial institutions to provide faster, more accurate, and more efficient services. The use of technology also allows financial service providers to obtain better information about consumer behavior so that it can improve the quality of decision-making. Thus, the adoption of technology not only provides benefits for financial institutions but also for the community as service users.

In addition to increasing access to finance, digital technology also contributes to improving the performance of the financial sector. Vo and Nguyen (2021) found that financial inclusion has a positive relationship with the performance of financial institutions through an increase in the number of service users as well as the expansion of financial markets. The higher the level of public participation in the formal financial system, the greater the opportunity for financial institutions to improve operational efficiency and strengthen their performance. These findings suggest that financial inclusion can be an important instrument in driving more inclusive economic growth.

A positive relationship between financial inclusion and financial stability was also found by Ahamed and Mallick (2019). The research shows that increasing people's access to formal financial services can strengthen financial system stability by expanding the savings base and increasing diversification of funding sources. In the context of economic development, financial stability is an important factor that supports the sustainability of economic activities. Therefore, increased financial inclusion can provide benefits not only for individuals but also for the economic system as a whole.

Although most studies show positive impacts, the results of the literature review also found a number of risks that need to be considered. Ozili (2021) explains that increasing financial inclusion does not always produce a beneficial impact. In some cases, expanding access to finance can increase credit risk, cost inefficiency, and financial system vulnerability if not accompanied by adequate risk management. The

findings suggest that expanding access to finance must be balanced with improving the quality of governance and supervision of the financial sector.

Similar results were found by Barik and Pradhan (2021) which show that financial inclusion can have a negative impact on financial stability if the expansion of financial services takes place too quickly. According to the study, an increase in the number of financial service users can increase the potential for the emergence of non-performing loans if financial institutions do not have an adequate risk management system. In other words, the benefits of financial inclusion depend heavily on the ability of financial institutions and regulators to maintain a balance between service expansion and risk control.

Findings that support this view were also found in the research of Ariefianto et al. (2022). The study shows that increased technology adoption and financial inclusion can have a negative impact on stability when measured through non-performing loan (NPL) indicators. The increasing number of financial service users has the potential to increase the proportion of high-risk debtors so that it can increase the likelihood of non-performing loans. However, the same study also found that the adoption of technology is able to increase stability when viewed from other indicators related to the profitability and capacity of financial institutions. These findings show that the impact of technology and financial inclusion is multidimensional and influenced by the indicators used in measurement.

In addition to the issue of stability, several studies have also highlighted the relationship between financial inclusion and economic efficiency. Le et al. (2019) found that increased financial inclusion does not necessarily improve the efficiency of the financial sector. The increasing number of financial service users can lead to increased operational costs, technology investment needs, and complexity of service management. This condition can reduce efficiency if it is not balanced with an increase in institutional capacity and management quality.

In the context of digitalization, research by Risman et al. (2021) shows that digital technology has great potential in strengthening financial stability through increased access to financing. The use of technology allows financial institutions to distribute financing more widely and efficiently so as to support economic growth. However, the study also emphasizes the importance of risk management to ensure that expanded access to finance does not create new problems for financial system stability.

The literature review also shows that the success of digital transformation is greatly influenced by institutional readiness and regulatory quality. Ivanova et al. (2019) explained that the digitalization of the financial sector requires adequate infrastructure, regulation, and human resource support so that the benefits of technology can be maximized. Without this readiness, technology adoption has the potential to create new risks that can reduce the effectiveness of digital transformation in driving economic development.

At the macro level, the World Bank report (2023) shows that the development of digital financial services contributes to increasing people's access to economic resources and business opportunities. Wider access to financial services allows businesses to obtain the capital needed to increase production capacity and expand business activities. This impact can ultimately drive more inclusive and sustainable economic growth.

Overall, the results of the study show that digital financial inclusion and technology adoption have great potential in improving economic performance through improving access to finance, transaction efficiency, productivity, and expanding business opportunities. However, these benefits do not appear automatically because they are greatly influenced by the quality of governance, the level of financial literacy, the readiness of digital infrastructure, and the effectiveness of the regulations implemented. The differences in results found in various studies show that the relationship between digital financial inclusion, technology adoption, and economic performance is still complex and multidimensional. Therefore, a policy approach is needed that is able to balance efforts to expand financial access and risk management so that the benefits of digital transformation can be optimally felt by all economic actors.

5. | DISCUSSION

The results of the literature review show that digital financial inclusion and technology adoption are closely related to improved economic performance, although the impact is not always linear. These findings show that digital transformation has opened up wider opportunities for people to access financial services, improve transaction efficiency, and expand participation in formal economic activities. In this context, digital technology plays an instrument that is able to reduce barriers to access to financial services so as to encourage the creation of a more inclusive economic system. This finding is in line with Khera et al. (2022) who emphasized that digital financial inclusion is able to expand people's access to various financial services through the use of digital technology.

This study also shows that increasing digital financial inclusion has the potential to make a positive contribution to economic development through increasing the efficiency of the financial system and expanding access to financing. As people have greater access to formal financial services, opportunities to invest, grow businesses, and increase productivity become increasingly open. This condition supports the view of Banna and Alam (2021) who stated that digital financial inclusion is one of the important factors in encouraging sustainable economic development. Thus, financial inclusion not only functions as a social instrument to expand access to financial services, but also as an economic instrument that can increase people's productive capacity.

However, the results of previous studies analyzed show that there are differences in findings related to the impact of financial inclusion and technology adoption on economic stability and performance. Some studies show positive impacts, while other

studies find negative consequences related to increased financial risk. This condition reinforces the research gap that has been identified in the preliminary section, namely the lack of consistent conclusions regarding the relationship between digital financial inclusion, technology adoption, and economic performance. Ozili (2021) explained that the expansion of financial access that is not balanced with adequate risk management can increase the vulnerability of the financial sector. Therefore, the success of financial inclusion is determined not only by increased access, but also by the quality of governance that supports the sustainability of the financial system.

The findings in this study also show that digital technology has multidimensional characteristics. Technology is able to increase efficiency and expand the range of services, but at the same time it can raise new risks that require the attention of regulators. Ariefianto et al. (2022) show that the adoption of technology can increase stability in certain indicators, but also has the potential to increase credit risk if expanded access to finance is not accompanied by effective control mechanisms. Thus, the benefits of technology are highly dependent on the readiness of institutions to manage the changes that occur.

In addition, the results of the study confirm that the quality of regulation and institutional readiness are important factors that determine the success of digital transformation. Ivanova et al. (2019) explained that the digitalization of the financial sector requires adequate infrastructure support, human resources, and regulatory frameworks so that the benefits of technology can be maximized. Therefore, the strategy for developing digital financial inclusion should not only focus on increasing the number of financial service users, but also on strengthening financial literacy, risk management, and institutional governance. This approach is necessary so that the benefits of financial inclusion and digital technology can contribute optimally to sustainable economic performance.

6. | CONCLUSION

Based on the results of the literature review, it can be concluded that digital financial inclusion and technology adoption have an important role in supporting the improvement of economic performance. The development of digital technology has expanded people's access to financial services, improved transaction efficiency, and created wider economic opportunities for various groups of people. Through the use of technology, various barriers in access to financial services can be reduced thereby encouraging greater participation in the formal economic system.

The results of the study also show that digital financial inclusion has the potential to increase productivity, strengthen financial intermediation, and support more inclusive economic development. In addition, the adoption of technology is able to improve operational efficiency, accelerate the dissemination of information, and expand the reach of financial services. However, these benefits do not always appear automatically. Some studies show that expanding access to finance and the use of technology that is not balanced with adequate risk management can increase the

vulnerability of the financial sector and create new challenges in maintaining economic stability.

The study also found that the relationship between digital financial inclusion, technology adoption, and economic performance is still complex and multidimensional. The difference in research results found in various literature shows that the effectiveness of these two factors is greatly influenced by the quality of regulations, the readiness of digital infrastructure, institutional capacity, and the level of people's financial literacy. Therefore, policies that are able to balance between expanding access to finance, strengthening governance, and managing risks so that digital transformation can make an optimal contribution to sustainable economic growth.

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Conflict of Interest Statement

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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