Research trends on digital transformation on financial market development

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Abstract The aim of this research is to analyze the effect of digital transformation on financial market development. The method used in this research was quantitative research with a literature study approach. The data used in this research were obtained from the Scopus database with the keywords "digital transformation and financial markets". The findings of this research show that the number of studies on the topic of digital transformation in financial market development has increased from 2019-2023. China and Portugal are the countries that produce the most research on the topic of digital transformation in relation to financial market development. In producing these research documents, China also often collaborates on research with other countries. The most influential scientist from research on the topic of digital transformation in financial market development is Diane M. Bergeron. This research contributes to future research by exploring digital transformation research trends in financial market development from different angles with keywords such as Digital Transformation and Financial Markets. These keywords are related to the development of financial markets, which has not yet been the subject of much research.

Keywords: market evolution, fintech impact, economic digitalization, financial innovation, global collaboration trends

1. Introduction

With rapid changes and the widespread use of digital technology, society is entering the era of the digital economy. By 2024, more than half of the global economy will be based on digitalization, and more than 90% of businesses and organizations will undergo digital transformation at the core of their growth strategy. The digital economy has become an important support for national economic development (Yu & Yan, 2022). The government should emphasize the need to accelerate the development of the digital economy and strengthen the overall layout of digital construction. The implementation of digital strategies has driven the endogenous power of business transformation, and an increasing number of companies are starting to join the wave of digital transformation.

According to Yu & Yan (2022) and Stalmachova et al. (2022), digital transformation refers to strategic business transformation, which in essence focuses on customers and equally requires organizational and cultural changes with the application of digital technology. Digital transformation is something much more dramatic and disruptive but capable of producing chaos in the business world. However, consider digital transformation to be the result of small but ongoing digital innovations taken at the enterprise level that trickle down to the industry level and, from there, to the industry ecosystem level. Therefore, digital transformation is achieved as a function of the accumulation of digital innovations (Li et al., 2022a).

According to Xue et al. (2022), organizations that foster digital technology and strategic thinking will be in an advantageous position in the competitive market. Data technologies such as artificial intelligence, cloud computing technology, and big data analysis influence companies' business practices. However, at this stage, companies lack an understanding of the importance of the connection between digital transformation and digital technology: As an important element in supporting economic growth, digital transformation is also inseparable from the challenges of developing financial markets that play an effective role in marketing goods and services. The use of marketing strategies based on digital technology is one solution that can provide new hope for the development of financial markets as an economic force. Level of readiness to use technology and how to digitize various business processes.

Thus, Digital Transformation of Financial Market Development is one solution that can provide new hope for growth as an economic force. The level of readiness to use technology and how to digitize various business processes, as measured by the level of digital awareness, can be used to assess the ability to engage in using digital technology. Several findings from previous studies examining the relationship between digital transformation and financial market development can play an important role in supporting the growth of economic strength (Indah et al., 2020). Rapid progress has been made in digital transformation (DT) through the delivery of various types of financial market services, often referred to as FinTech (or financial technology), covering areas such as P2P lending and crowdfunding (Park et al., 2021), to understand the meaning of the nature of digital transformation in the development of financial markets (Pasqualino et al., 2021).
In this context, digital transformation mechanisms in financial market development, and analyzing digital transformation in financial market development. Mavlutova et al. (2023a) examines how digital technology can be used to transform existing business processes. Digitalization is the key to opening new businesses, improving customer experience and optimizing coordination between processes at the international level. Digital transformation occurs as a response to digital change, implying fundamental changes in organizational activities based on the use of digital technologies. (Diaz & Montalvo, 2022a) examines the vital role of improving the performance of digital transformation in the development of financial markets in the business sector. significantly related to digital transformation.

According to Pranita et al. (2021) has a significant positive effect on both digital transformation and financial development (Krinichansky & Rubtsov, 2022). Digital transformation has an impact on financial development (Serbulova, 2021). Digital transformation has a significant partial and simultaneous effect on financial development (Gertzen et al., 2022). One of the factors causing a low level of digital transformation is workload. Abilova & Aliyeva (2022) using a questionnaire distributed to respondents. The respondents' opinions were measured using a five-point Likert scale. Scores were 5 for strongly agree opinion, 4 for agree opinion, 3 for neutral opinion, 2 for disagree opinion and 1 for strongly disagree opinion (Jiang et al., 2023). Commitment to digital transformation has a significant direct positive effect on market finance, and digital transformation has a significant direct positive effect on performance.

Digital transformation has a significant indirect effect on financial markets. Maksimtsev et al. (2022) commitment to financial markets has a significant positive influence on digital transformation, digital transformation has a significant positive influence on the development of financial markets, it has a significant positive influence on digital transformation, and financial markets have a significant positive influence on digital transformation. Moreover, digital transformation, as an intervening variable in the causal relationship between financial markets and digital transformation, does not have a significant influence. as an intervening variable in the causal relationship between them. In general, digital transformation can be found; for example, there are still groups that use digital technology to market products/services, which is a challenge in itself, stating that the level of readiness to use technology and how to digitize various business processes can be assessed from the level of digital awareness, the level of digital investigation ability, collaboration digital, and digital transformation capabilities. Based on this description, the aim of this research is to examine the digital transformation of financial market development. First, considering that previous research has not specifically studied digital transformation, this research does not focus on the results of previous bibliometric studies. Therefore, this research contributes to complementing existing research and can lead to further research.

2. Literature Review

2.1. Digital Transformation

Digital transformation is the ability to use digital technology and communication tools to access, manage, integrate, analyze and evaluate information to build new knowledge and create and interact with others (Diaz & Montalvo, 2022b). Digital transformation is defined as individual behavior that is free to choose, not regulated directly or explicitly by a formal reward system and that progressively promotes effective organizational functioning.

Mavlutova et al. (2023b) defines Digital Transformation as a set of employee behaviors that exceed the requirements of the job role, including attitudes as constructive statements about the department, expression of personal interest in other people's work, suggestions for improvement, training of new employees, respect for morale and written maintenance rules, care for company property, and time and attendance requirements above enforceable standards or levels.

From the definitions above, it can be concluded that Digital Transformation is a series of employee behaviors that involve freedom to carry out work outside of one's formal work with the aim of developing effective organizational functions. Understanding digital transformation and its positive impact on business actors is important because it shows customer satisfaction. Customer satisfaction is significantly influenced by service quality. This shows that what is anticipated in terms of service quality is in accordance with what consumers feel, giving rise to feelings of satisfaction with the level of service received (Somina & Falko, 2023).

2.2. Financial Market Development

Financial market development is the capacity of individuals or groups to manage their finances wisely according to their needs and the economic environment in which they live (Li et al., 2022b). Understanding financial market developments is very important for business actors. However, in practice, many actors often fail because they are unable to manage their business successfully due to a lack of financial market development. In managing a business, financial management must be taken into account. Because of the importance of financial management, it is often overlooked by owners (Monkiewicz & Monkiewicz, 2022). His research explains that the development of financial markets is influenced positively and significantly by financial markets. This shows that it will greatly increase if financial market development continues to improve.

The financial market is a part of the financial system that is related to trading, borrowing, or short-term funding activities of up to 1 (one) year in rupiah and foreign currencies; this market plays a role in the transmission of monetary policy, achieving
financial system stability and smooth operation of the financial system, payment system. To determine and implement monetary policy, Bank Indonesia carries out monetary control through financial markets in both the rupiah and foreign currency. To increase the effectiveness of monetary policy, macroprudentials, payment systems and rupiah money management carried out by Bank Indonesia, financial market deepening is needed to achieve an efficient, liquid and deep domestic money market.

Efficient, liquid and deep financial markets will not only support the effectiveness of monetary policy, macroprudential, payment systems and rupiah money management but also provide flexibility for market players in managing funds, both for funding, investment and other economic activities. Therefore, Indonesia needs to accelerate the process of deepening its financial market through comprehensive regulation, licensing, development and supervision of various transactions and instruments in the financial market.

Financial market regulation is also carried out by taking into account the laws and regulations regarding the state treasury regarding the use of government debt instruments as monetary instruments through monetary operations carried out, among other things, by repurchase agreement (repo) transactions. Financial market regulations are intended to provide a legal basis so that they can serve as guidelines and provide legal certainty for market players in making transactions in financial markets.

3. Methods

This research used quantitative methods as its main research strategy. Quantitative research combines the relationships between the variables involved to collect data about the facts and characteristics of the items studied; these data are subsequently analyzed using relevant theory and literature and analyzing articles related to digital transformation and financial market development. The data sources used are scientific articles that are relevant to the use (Broby, 2021) is a systematic scientific method of bibliographic research, which includes collecting materials related to the research target; collection techniques using library methods; and organizing and presenting data.

Qualitative research using library study techniques is a data collection technique based on the search for written data such as notes, books, papers or articles, and journals. This type of research is descriptive. The descriptive method can be interpreted as a problem-solving procedure that is investigated by describing the condition of the subject or object in the research, which can be a person, institution or society or others who are currently based on facts that are visible or what they are.

This article uses library research, namely, a method of collecting data by understanding and studying theories from various related literature. According to C. et al. (2022), there are four stages of library study, namely, preparing the necessary equipment, preparing a working bibliography, organizing time and reading and recording research material. The data were collected by searching for sources and constructing them from various sources, such as books, journals and existing research (Figure 1). Library materials obtained from various references are analyzed critically and in depth to support propositions and ideas. Collecting data with documentation and consignment is a way of collecting data by analyzing written data in documents such as journals, transcripts, books and other printed media.

The data analysis method used in this research was inductive data analysis. This inductive analysis is used to assess and analyze data that have been focused on digital transformation in financial market development. Researchers use this inductive analysis by analyzing specific factors to draw objective conclusions.

The addition of articles to the Scopus database was carried out in several stages. In the first stage, I categorized the search using two keywords, "Digital Transformation and Financial Market Development", identified based on category titles, abstracts, or keywords, which yielded 383 documents. In the second stage, I limited the time by modifying the database search.
to five years from 2018 to 2022. This time limit was chosen to obtain the latest references regarding the issue of Digital Transformation and Financial Market Development. At this stage, the investigation produced 383 documents. In the third stage of this research, I determined the focus of the types of documents that would be analyzed, namely, the types of articles, conference papers, book chapters, reviews, notes and erratum’s, which produced 383 documents.

After checking the abstracts and titles of the 383 documents produced, I found that several documents were not relevant to this issue. To increase the relevance of the topic being studied, in the fourth stage, I classified the keywords used in each scientific paper by examining keywords related to Digital Transformation and Financial Market Development, which produced a total of 273 document results. In the fifth stage, so that the data processing process does not involve language bias, I categorized the documents as being produced in English, resulting in 176 documents, which were subsequently analyzed.

4. Results and Discussion

4.1. Document by year

The annual volume of research papers is an important indicator of the development trend and massiveness of research in this field (Luo et al., 2022; Arias-Pérez et al., 2020). Therefore, based on Scopus search results, the annual publication volume of this study on the effect of digital transformation on financial market development.

Figure 2 above shows that the number of published scientific articles has increased annually, and by 2022, there will be 141 documents discussing digital transformation in financial market development. Furthermore, in 2018, there were 30 documents reviewing this topic, even though in 2018, the world was experiencing a pandemic, which significantly affected financial markets. According to Davydov & Khalilova (2019), research is important for understanding the role of digital transformation in financial markets because this can lead to new breakthroughs in improving the quality of financial market development. Figure 2 shows the number of publications published in the last five years.

![Figure 2 Publication by Year. Source: Scopus database.](image)

Figure 3 shows that of the 383 scientific articles published in Scopus-indexed journals, authors from 75 countries have contributed to digital transformation in the development of financial markets. The country with the highest number of publications is Russia, with 131 documents. Among these countries, researchers have shown that Asian countries have the highest interest in conducting research on digital transformation for financial market development, with 383 documents indexed in Scopus. This provides great potential for developing countries, especially in countries with high research interest, as it leads to research on digital transformation and the development of financial markets in these countries (Laviniki et al., 2021).

Figure 4 shows the highest number of publications on digital transformation in relation to financial market development; each author published 2 and 3 documents, but of those 383 articles, many authors were involved in analyzing this study, and 131 other authors were involved. However, from these publications, several articles by the author are very relevant to the current state of digital transformation (Xie, 2023) based on digital data and how multiple effects digital transformation has on the development of financial markets, more specifically for users of digitalization. Therefore, the dynamic development of digitalization and the use of new technological tools can facilitate more efficient interactions and have great potential for the development of financial markets (Tou et al., 2020).
In full, the relationships among subtopics in digital transformation research are described. The most prominent subtopic is digital transformation, which has the largest nodes compared to other subtopics. As shown, there are five colors, namely, light blue, red, yellow, light green, and blue (Figure 5). These colors indicate the division of research subtopic clusters according to the main topic of digital transformation.
It can be seen from several authors who study the topic of digital transformation and occurrence that there are 103 while the total links are 403 (Pérez & Torrent-Sellens, 2020) while commerce is 39 and the total links are 187 (Vij et al., 2023).

![Table showing selected keywords and their occurrences](image)

**Figure 6** Number of authors reviewing the topic.

Based on the findings in this research, there is a close relationship between the authors and digital transformation and between the development of financial markets and each other. In this way, innovation in science can be created by examining topics that continue to develop every year (Thees et al., 2021). In addition, we can provide new evidence for transnational cooperation in international institutions and other institutions (Luo et al., 2022).

In this research, as shown in Figures 4, 5, and 6, regarding digital transformation between researchers and the development of financial markets, this happened because the suitability of the field being studied was very relevant and because they carried out massive and complex research producing more than one research result. In addition, in the research conducted using various scientific perspectives, the number of articles published was also greater than average. With this explanation, the digital transformation of financial market development was carried out involving various parties or actors in this research study. This is our shared knowledge in analyzing the digital transformation of financial market developments. Investigating the rapid development of financial markets can provide a reference for future researchers and, therefore, be useful for Indonesian people who have many opportunities to manage the digital transformation of financial markets. (Firman et al., 2022).

5. Final considerations

Based on the findings and discussion in this research, we can conclude that the digital transformation of financial market development is still relevant for ongoing study and that this provides knowledge about current and future financial market conditions. In this research, 2019 was the year in which the topic of digital transformation of financial markets was most common, but on average, the authors published 2 to 3 documents in the last five years; this study involved mostly China and Portugal. In this research, it was also found that there is a close relationship between researchers, institutes or institutions and countries when conducting joint research. Thus, this topic has become the center of global attention and can be studied from various scientific perspectives. Seeing these developments, this approach is very beneficial for users who take advantage of advances in digital technology in this era of globalization.

Due to the limitations of this research, we used one data source obtained from Scopus, not including journals from other official websites. We provide suggestions for future researchers to study financial market developments in a more complex manner. Both in the industrial sector are managers and digital users who are the objects of digital transformation regarding current financial market developments.

**Ethical Considerations**

Not Applicable.

**Conflict of Interest**

The authors declare that they have no conflict of interest.

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References

Adi et al. (2024)