
Digital transformation as a driver of financial sector development

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Abstract: Digital transformation has become one of the main driving forces behind the development of the financial sector, fundamentally changing its structure and functioning. Modern innovative technologies, such as artificial intelligence, cloud services, the Internet of Things, big data analytics, and blockchain, provide opportunities to introduce new approaches to managing financial processes, helping to increase efficiency, reduce costs, and improve customer service. Digital platforms allow banks and financial institutions to automate routine processes, increasing productivity and reducing transaction processing time. The COVID-19 pandemic has become a positive catalyst for an accelerated transition to digital financial solutions. The closure of physical bank branches and the restriction of social contacts have forced consumers and institutions to rethink their approaches to financial services. As a result, mobile applications, online banking and electronic payment systems have become an integral part of everyday life. Financial institutions have quickly adapted to the new environment by offering customers convenient and secure ways to interact, which has contributed to the growth of trust in digital service channels. However, along with the benefits of digitalization, the financial sector faces a number of challenges. In particular, cybersecurity issues are becoming increasingly relevant as the amount of data stored and processed in digital format grows. Protecting confidential information and ensuring the security of financial transactions requires institutions to invest heavily in modern security systems and ongoing staff training. In addition, the rapid development of technology is outpacing the regulatory framework, which may lead to legal uncertainties and increased risks for market participants. Financial institutions implementing digital solutions face the need to restructure their business models to remain competitive. This requires investing in the latest technologies, developing partnerships with Fintech companies, and shifting to new approaches to customer interaction. Innovative financial products, such as automated investment platforms, digital currencies, and mobile payments, are becoming the basis for the future development of the sector, providing convenience, accessibility, and an individualized approach to customer service. At the same time, digital transformation is creating new opportunities for economic growth, increasing the competitiveness of financial institutions and facilitating integration into the global economy. Research in this area allows us to better understand the impact of digital technologies on economic processes and develop strategies to maximize their potential. Prospects for further development of the digital financial sector include improving data analytics processes, enhancing customer service, and strengthening regulatory frameworks to ensure the safety and soundness of financial systems. The article discusses the main trends of digital transformation, its impact on the financial sector and strategic approaches to overcoming the challenges faced by market participants in the digital era.

Keywords: digital transformation, financial sector, digitalization, digital financial platforms, FinTech companies, financial services, financial institutions, financial market.

1. Introduction

Today's world is undergoing a large-scale economic transformation driven by digital technologies. They are causing significant changes in global markets, industry, and production processes. Modern innovations, such as data processing platforms, artificial intelligence, cloud services, the Internet of Things, big data analytics, and blockchain, are fundamentally changing the way we use information in business. This helps to increase the efficiency of processes and improve the quality of products and services.

Digital transformation has become one of the main topics of discussion in the scientific literature. Ideas related to digital products and services are constantly analyzed and studied. Today, the Internet is a global platform for business that has no barriers to entry and provides an opportunity to participate in international competition.

New conditions of work in the digital environment impose additional requirements on market participants. One of the key competencies is the ability to quickly process large amounts of data and promptly interpret information, which directly affects the competitiveness of enterprises.

Transformational changes are occurring especially rapidly in the financial sector, which, along with the information and communication sector, has become the most ready and motivated for innovative technological and organizational changes. The COVID-19 pandemic has become a catalyst for accelerating the introduction of new technologies in this area. Banks and other financial institutions are actively integrating digital tools, such as mobile applications, online banking, and payment systems, to meet the needs of customers seeking security and convenience. This allows not only to increase service efficiency but also to reduce operating costs. In addition, the use of artificial intelligence and data analytics technologies helps financial institutions better predict market trends, manage risks, and offer personalized financial products. As a result, digitalization is becoming a determining factor of competitiveness in the financial sector, creating new opportunities for development and growth.

2. Object and subject of research

The object of research is the process of digital transformation of the financial sector, including the introduction of innovative technologies that change traditional approaches to the provision of financial services.

The subject of the study is the impact of digital transformation on the financial sector, its impact on economic processes, competitiveness and innovation of financial institutions.

3. Target of research

The purpose of the study is to examine the impact of digital transformation on the financial sector.

To achieve this goal, the following tasks were solved:

1. Identify the main trends and directions of digitalization.
2. Analyze changes in consumer preferences and requirements for financial services under the influence of digitalization and determine how financial institutions are adapting to these changes.
3. Identify the risks associated with digital transformation.
4. Assess the impact of digitalization on economic processes and the development of financial services.
5. Identify prospects for the development of new financial products and services in the context of digitalization.

4. Literature analysis

The topic of digital transformation of the economy has been attracting considerable attention of scientists since the end of the last century. They have been studying how digital technologies affect economic processes, including business efficiency, productivity, and innovation. Among the prominent scientists who have studied these issues are Canadian economist Don Tapscott, who in 1994 in his book “Digital Economy” [1] was one of the first to introduce this term into scientific circulation, N. Negroponte [2], who emphasized that in the digital world previously impossible solutions become viable, M. Knickrem, B. Burton and P. Doherty [3], who studied the strategic aspects of digitalization in various industries, Boni David Jonathan Yapi, Mehdi Seraj and Hussein Ozdeser [4], who studied the relationship between the digital economy and sustainable economic growth of individual countries and highlighted individual elements of the digital economy, providing an understanding of their collective contribution to the economic benefits of digital systems, E. Brynjolfsson and B. Kahin [5], who focus on the economic benefits of digital innovations, T. Mesenburg [6], according to whose research, the main components of the digital economy are such elements as infrastructure, electronic services of government agencies, business processes of enterprises and e-commerce, Klaus Schwab [7], who argued that the main difference between the Fourth Industrial Revolution and the Third is the synergistic effect that arises from the integration of computer, information, nanotechnology and other innovative solutions. According to his forecasts, one of the consequences of the Fourth Revolution will be the disappearance of boundaries between the physical, information and biological worlds.

In turn, the development of digital technologies in the financial sector has also attracted the attention of many researchers. Among Ukrainian scholars, we can note the works of R. Bezpalyi [8], O. Parubets, D. Suhonyako and I. Seredyuk [9], O. Pryiatelchuk [10]. O. Petruk, Y. Burtsev, S. Zakhypas, O. Popov [11], V. Mishchenko [12], D. Tyshchenko [13]. O. Shevchenko [14], V. Uninets-Khodakivska [15], R. Yankovyi [16] and others. Studies by both foreign and Ukrainian scholars show that digitalization is a powerful driver of economic development and an important factor of competitiveness in the modern world. At the same time, the issue of the spread of digital technologies and their impact on the digitalization of the financial sector is of particular interest and requires further research.

5. Research methods

The methodological aspects of the study are the scientific works of foreign and Ukrainian scholars on digital transformation in the financial sector and its impact on economic processes.

The article uses the following research methods: analytical method - to study and summarize theoretical and practical materials on the digitalization of the financial sector; deductive method - to determine the impact of global trends in digital transformation on the financial sector in the near future; abstract, logical and generalization - to formulate conclusions, generalizations and recommendations for the further development of financial services in the context of digitalization.

6. Research results

Modern digital technologies and new approaches to the organization of the information space have a significant impact on the development of enterprises in the financial sector. The speed at which management decisions are made is constantly increasing, forcing companies to adapt to new conditions. The COVID-19 pandemic has become a positive catalyst for the rapid digitalization of financial services. Governments in many countries have introduced restrictive measures, which has accelerated the transition from traditional to digital business models, significantly accelerating overall technological progress.

In the post-covid period, digital solutions and remote service delivery have become even more

relevant. Consumers quickly adapted to the new conditions, which changed their habits and became the basis for the development of financial technologies. Financial institutions were forced to rethink their approaches to work, abandoning outdated technologies and introducing new solutions to meet the needs of customers who prefer remote services.

Financial institutions have rapidly increased the accessibility of their services, developed innovative digital products, and created new infrastructure. The introduction of new, more structured and secure financial products and services has significantly improved data processing and exchange, resulting in faster transaction execution and lower transaction costs. It has also made it easier for new businesses to enter the market, reducing barriers to entry and contributing to the formation of modern consumer preferences. As a result, new players, such as FinTech companies, have dramatically changed the financial landscape, forcing traditional providers to adapt to new realities by introducing innovative solutions. This has contributed to rapid digital transformation in the financial services sector, changing traditional approaches to doing business [17].

The Strategy for the Development of the Financial Sector of Ukraine until 2025 [18] states that “The development of technology, e-commerce, the use of smartphones, and digital currencies have led to the transition of traditional banking and operations with financial instruments to the virtual space. Improving the regulation of the payment market infrastructure in line with EU standards has contributed to the development and reduction of the cost of cashless payments and the creation of a large number of FinTech companies in Ukraine. The NBU has created a Sandbox to stimulate the development of FinTech companies. Regulation of crowdfunding and transactions with virtual assets was introduced. Due to the rapidly changing needs of financial market participants, traditional payment activities have been digitized, the volume of non-cash payments has increased (the ratio of non-cash transactions to total transactions is 75%), financial services have become available 24/7 regardless of the client's location, various methods of remote identification have been used, competition in the financial market from FinTech companies and the emergence of new IT solutions and tools in the financial sector, including regulatory tools, have intensified. One of the priorities of financial sector regulators is to ensure cybersecurity of payment, depository, and exchange infrastructure. Digitalization in the financial sector stimulates the development of a digital society in Ukraine.”

Digital technologies, being the basis for the provision of financial services, actively stimulate the introduction of innovations in the financial sector. According to O. Borysiuk [19], their integration into the financial market has contributed to such changes as:

1. Computerization of the internal structures of the financial market, which allowed the formation of a modern telecommunications environment for the rapid and efficient exchange of information.
2. Focusing financial activities on the implementation of advanced digital solutions that increase the efficiency and competitiveness of institutions.
3. Development of standards governing the presentation, processing, and transmission of data, taking into account international norms, which ensures global compatibility.
4. Creating the main components of a computerized financial market infrastructure that allows for efficient management of financial flows and data.
5. Ensuring coordinated interaction with the national information system, which improves coordination and data exchange within the country.
6. Access to global computer networks for access to databases on financial market participants, which contributes to a better understanding of market trends.
7. Widespread use of integrated information processing systems, which allows for process optimization and increased productivity.
8. Monitoring and utilizing the growing opportunities of digital technologies to improve financial services and products.

The development of financial innovations is stimulated by a number of factors. One of the most important drivers of change is the transformation of consumer behavior. In the modern era, when

information technology penetrates all aspects of everyday life, consumers are accustomed to quick and easy access to services via the Internet. This creates a high demand for convenience and efficiency, and the market is forced to adapt to these expectations. Consumers are becoming more knowledgeable, demanding higher quality of service, and less tolerant of delays and inconveniences. Accordingly, financial institutions are reducing their physical presence, focusing on developing digital channels to serve customers.

In addition, the impact of fintech startups and neobanks is driving the digital transformation of the financial sector. These new market players often offer innovative solutions that are more profitable and flexible for customers than traditional banking products. This is forcing conventional banks to invest in the latest technology and partner with tech companies to stay competitive. Without adapting to rapid change, financial institutions risk losing market share to competitors that are quick to adapt to innovation.

Another important aspect is the desire of financial institutions to increase customer satisfaction through the development of integrated platforms and ecosystems. Modern financial institutions seek to offer customers comprehensive solutions that cover a wide range of financial services, providing convenience and ease of use. This requires banks and financial institutions to introduce new business models that integrate various products and services into a single system, making it easier for customers to manage their finances.

However, along with its many benefits, the introduction of digital technologies in the financial sector is accompanied by a number of challenges that require attention and appropriate response.

One of the most serious challenges is cybersecurity. As more and more data is digitized, the risk of unauthorized access to information increases. Cyberattacks can cause significant damage to both financial institutions and their customers. Jeremy Burke, Christine Kieffer, Gary Mottola, and Francisco Perez-Arce [20] note that the digitalization of the financial market significantly increases the risk of financial fraud. This problem is widespread and can have serious consequences for victims of fraud.

Marguerite Delima, Martha Divi, Annamaria Lusardi, and Olivia S. Mitchell [21] conclude that the elderly are the most vulnerable group at risk of financial fraud. The authors emphasize that fraud is a complex phenomenon, and the digital transformation of financial services only increases the risks for consumers.

According to research by Idit Woodall [22], the percentage of American adults who demonstrate a very low level of financial literacy increased from 20% in 2017 to 25% in 2023 (Fig. 1). The author notes that financial literacy is an important skill that allows people to effectively manage their money and make informed financial decisions.

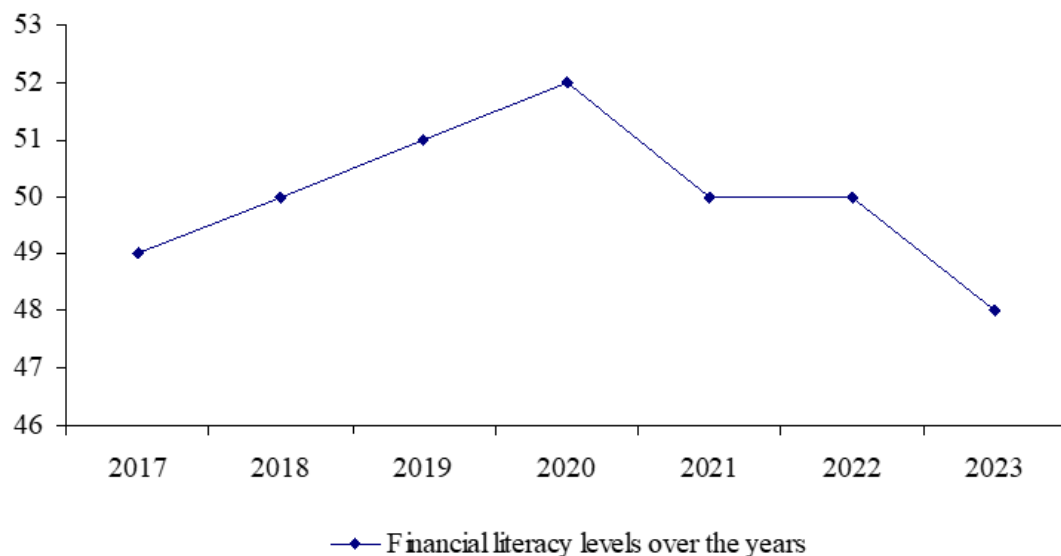


Fig. 1. Dynamics of Financial Literacy Over the Years

Ensuring cybersecurity requires significant financial investments and specialized knowledge. Financial institutions should invest in modern security systems, conduct regular staff training to minimize these risks, and promote financial literacy among financial services consumers.

Another important aspect is technological dependence. In today's world, where many financial services are provided via the Internet, a lack of network access or software failures can lead to serious disruptions in service delivery. This reliance on technology makes financial institutions vulnerable to technical problems that could affect their ability to serve customers effectively.

Insufficiently developed legislation to regulate digital technologies is also a challenge. Regulatory frameworks do not always keep pace with the rapid development of technology, which can lead to insecurity for market participants. The absence of clear regulations and standards in this area creates legal uncertainty, which can endanger both consumers and financial service providers.

As financial institutions move to a digital business model, they should take these threats into account and actively work to minimize them. This includes investing in the latest security technologies, developing backup systems that can maintain operations in the event of disruptions, and working with regulators to create a more effective regulatory framework. In addition, financial institutions should engage in financial education to raise customer awareness of the risks and safe use of digital services.

We support the opinion of N. Koziy and O. Synitsyna [23] that in order to successfully implement the digital economy in the financial sector, several important tasks need to be solved:

1. To form a clear vision that changes in the financial market associated with the introduction of digital technologies are crucial for future development.
2. Ensure the conditions for the introduction of digital technologies in financial institutions, which will facilitate their integration into daily activities.
3. Create an analytical framework in the system of regulating financial institutions that will allow for effective tracking of financial transactions.
4. Establish a balance between human resources and technology by matching the requirements of the digital economy with the capabilities of the staff.
5. Ensure an increase in the level of digital literacy among professionals.
6. Unify digital accounting in the financial market, generating the information necessary to make informed financial decisions.
7. Develop cybersecurity strategies to protect the digital infrastructure of financial institutions from cyberattacks and unauthorized access.
8. Support the development of FinTech startups that can offer new ideas and solutions to improve financial services.
9. Ensure that digital services are accessible to all segments of the population to avoid digital inequality.

7. Prospects for further research development

Given the rapid development of digital technologies, financial institutions are facing new challenges and opportunities, making this topic relevant for future research.

First of all, the digital transformation of the financial sector opens up new horizons for increasing efficiency and reducing costs. The introduction of advanced technologies, such as artificial intelligence, blockchain, and big data, allows financial institutions to automate processes, improve forecasting accuracy, and reduce risks. Further exploration of these technologies and their integration into financial operations could significantly change traditional approaches to doing business.

In addition, the development of new cybersecurity methods is becoming an integral part of research in this area. Given the growing threat of cyberattacks, research into new ways to protect data and financial transactions is essential. This will help not only protect financial institutions from potential threats but also increase customer confidence in digital services.

Research into FinTech innovations is also worthy of attention, as it can stimulate the development of new products and services that will meet the growing needs of consumers. Exploring the possibilities of using technologies such as mobile payments, digital currencies, and automated investment platforms could have a significant impact on the future of the financial sector.

Thus, further research on the digital transformation of the financial sector can make a significant contribution to improving the efficiency, security, and innovation of financial services.

8. Conclusions

The digital transformation of the financial sector has brought about significant changes, driving innovation in financial services through the introduction of new technologies. These changes bring numerous benefits to both customers and financial service providers, improving the quality of service, increasing the efficiency of business processes, and creating new opportunities for development. The impact of digitalization on the financial sector is multifaceted and has significant potential to improve the efficiency of financial institutions and meet consumer needs.

However, along with its benefits, digital transformation poses certain risks for all participants in economic relations. In particular, the issues of cybersecurity, technological dependence, and insufficiently developed legislation in the field of digital financial services require special attention.

The digitalization process has a significant impact on the development of economic relations between financial services providers and consumers. In order to remain competitive, financial institutions must quickly integrate the latest technologies, develop innovative financial products that meet consumer requirements, and effectively forecast the results of their implementation. At the same time, consumers should actively raise their awareness of new digital products and technologies, develop risk management skills, and take a proactive stance in the market.

Further research on the digital transformation of the financial market could contribute to a better understanding of how these changes affect economic relations and what steps can be taken to mitigate risks.

These studies will not only help improve the provision of financial services, but also increase consumer confidence in digital technologies, which will contribute to sustainable economic growth and improve the quality of life. Thus, the digital transformation of the financial sector is a huge opportunity for all market participants that require a comprehensive approach and continuous improvement.

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