

KEY DIRECTIONS FOR ADVANCING AND APPLYING FINANCIAL TECHNOLOGIES IN THE CONTEXT OF BANKING INDUSTRY DIGITALIZATION

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У статті розглядається активне впровадження цифрових технологій у банківській сфері, зазначається, що цифрова трансформація банківського сектора принесла зміни в конкурентній динаміці, зсуваючи акцент з цінових питань на якість обслуговування та зручність взаємодії з клієнтами. Наочно висвітлено роль малих та великих банків у цифровізації, підкреслено переваги гнучкості невеликих установ у відношенні до клієнтів середнього бізнесу. Розглянуті перспективи розвитку банківської системи та необхідність інвестицій у цифрові технології. Звернута увага на значення конкуренції в цифровому середовищі та особливості розвитку нових банківських продуктів. Приведений SWOT-аналіз ринку фінтех-індустрії, в якому обговорюються позитивні та негативні сторони, можливості та загрози для розвитку цього сектору. Зазначено, що відсутність інтересу зарубіжних та вітчизняних інвесторів є однією з головних проблем, яка перешкоджає розвитку українського фінтех-ринку.

Ключові слова: банківські установи, фінтех-індустрія, ринок фінансових послуг, банківські продукти, фінансові технології, цифровізація

Problem statement. The rapid development of technology is spreading to all spheres of life, and the banking sector is no exception – a new promising area of «Fintech» or financial technology has emerged, and today the banking sector is one of the fastest growing. Due to the rapid development of technology, the financial and monetary systems of many countries are beginning to change rapidly. There is a shift from cash to online wallets, from bank loans to online loans from other users. All this leads to the fact that traditional players in the banking sector are changing their banking products and services. Innovative development of the financial sector is a priority for modernizing the activities of banks and the economy as a whole, which makes the chosen research topic relevant.

The review of recent research and publications. Economists are actively researching the problem of introducing and effectively using the latest financial technologies in the banking sector. Interesting scientific works are devoted to the

general development of financial technologies in the financial market, in particular, the works of T. Sunduk [1], M. Balytska [2], O. Shevchenko [3]. The development of financial technologies in the banking sector is the subject of publications by such scholars as S. Reverchuk [4], A. Boldov [5], V. Kovalenko [6]. Particular attention is drawn to scientific works that explore the relationship between fintech companies and banks. Such studies are presented in the works of V. Kovalenko [6], L. Zherdetska [7], and M. Zveriakov [8].

Research methodology. The theoretical and methodological basis of this study was the analytical method, which serves as the basis for analyzing Ukrainian and foreign sources using a systematic analysis of the works of domestic and foreign scholars and practitioners. The study used general theoretical methods, including generalization, to formulate conclusions, as well as structural analysis and classification. This approach made it possible to analyze and summarize the information received from leading scholars and practitioners to highlight the main trends and solve the research objectives.

Objectives of the research. The purpose of the study is to analyze and identify the main vectors of development and implementation of financial technologies in the context of digitalization of the banking sector and to review the general trends in the digitalization of the banking sector. Assessment of the potential and benefits of digital innovations to increase the efficiency of banking services and improve customer experience.

Research results. The active implementation of digital technologies in the banking sector has its origins in the control of gold and foreign exchange flows. In today's environment, the financial sector, as the most important segment of the national economy, reflects the most advanced solutions in the digitalization of financial technologies. The innovations proposed in this area are aimed at improving financial activities through better and more personalized services at lower customer costs [1]. As the experience of the banking system development shows, traditionally small banks work more effectively with medium-sized enterprises, as they are able to respond flexibly to customer requests and pay more attention to them, while large players, sometimes physically unable to understand all the problems of small and medium-sized businesses. With this in mind, digitalization is fundamentally changing the functions of the banking sector, a process that has become even more evident and rapid during the COVID-19 quarantine. Medium-sized banking institutions inevitably have to compete with large credit institutions that have implemented IT services with Big Data technologies that enable closer interaction with each client [2].

Competition in the banking services market is increasingly shifting from the price sphere to the quality of service, convenience of interaction and communication channels, completeness of offers, personalization and design of banking products. Only those banks that are able to offer a full range of banking products and services to their customers at the right time and in the most convenient way can actively increase their customer base and sources of income [3]. This requires significant investments and the ability to operate with huge amounts of data based on powerful analytics. For the vast majority of domestic banks, the implementation of such projects is extremely difficult.

Experts believe that in the medium term, small banks may not be able to cope with the growing competition in the market, but competition between large banks will only increase. Large domestic banks follow the line of transformation into digital institutions that provide a wide range of financial products and services, as they make significant investments in Fintech and actively implement innovative pilot projects [4].

By implementing a full-scale digital transformation, banks will be able to provide customers with a wide range of services within their own financial and even non-financial ecosystems. The creation of such platforms is already underway at the largest banks, which offers significant competitive advantages. The limited funds for digital transformation are partially offset by the creation of nationwide platforms with a range of technological services. The formation of a nationwide financial infrastructure partially levels the competitive capabilities of different groups of banks, eliminates the role of the bank's geographical location, creates conditions for a significant reduction in business costs, and increases the availability of financial services. In addition to the projects supported by the government and the NBU, financial institutions are actively working to introduce digital innovations on their own. The priority technologies of digital transformation on a national scale are big data analysis, monitoring of the financial condition of a banking institution, artificial intelligence, robotics, Chabots, open interfaces, optical recognition of the Internet of Things, virtual and augmented reality [5]. Among various fields of activity, banks are currently leading the way in the use of Chabots. New technologies help banks to reduce costs and continuously improve the quality of services provided, which contributes to the leveling of conditions in the banking services market. Competition encourages a large number of banks to introduce new banking products for both individuals and legal entities on the basis of partnerships.

It is worth noting that in the context of the COVID-19 pandemic, general self-isolation and the transfer of most employees to remote work have made digital services more relevant than ever. The process immediately affected the organization of the functioning of banks and their products and services offered to customers. In view of this, the basic asset in the digital space is information, and data security is the main basis and component of the digital economy. To ensure information interaction and coordination of work on combating crimes in the field of IT, the NBU established the Financial Monitoring Department to respond to computer attacks in the national credit and financial sector [10].

In view of this, the NBU has introduced consolidation of information security to exchange data on cyber threats, which allows participants to automatically receive verified and relevant information online. Credit institutions receive support from technical specialists, if necessary, who help to customize the credit institution's security tools for further use and integration to protect the bank. In view of this, we can identify some general trends in the transformation of the banking sector in the context of the digitalization of the banking sector (Table 1). Thus, in the field of Cyber security, state-owned banks are the leaders, which are developing their own development strategy, taking into account the regularity of cyber-attacks and increasing security.

Table 1. General trends in the digitalization of the banking sector

Trends	Contents
Cyber security	With the growth of the Internet, the issue of cyber security is reaching a fundamentally new level. This leads to investments in information security.
B2B marketplaces	Like retail consumers, businesses need comfortable conditions for online purchases and a variety of payment methods.
Digitalizing public services	In addition to the external motivation of banking institutions, the digitalization of the economy contributes to the development of a digital state, whose goal remains the same – to interact with the population and business. It also helps to prevent corruption, thus saving time and money.
Trans boundary cooperation	Investing in the development of international associations creates priorities for years to come. In addition, the prospects of such alliances are obvious.
Creating shared IT platforms	Allows creating common digital solutions and stimulating collaborative search for them.

*Note: *developed by the authors*

In view of the above, digitalization contributes to the blurring of the boundaries between banking and non-banking activities, which makes it possible to create fundamentally new banking products that radically change the banking environment. It should be borne in mind that digitalization has a direct and growing impact on the economic growth of GDP, its dynamics, as well as the productivity and well-being of entities in all sectors of the national economy.

Today, the level of digitalization of the economy indicates the country's position on the world stage. That is why the issue of improving the policy of digitalization of the national economy is relevant if the country aims to increase competitiveness and improve efficiency and productivity [6]. Payments and transfers are the most popular banking products in the financial technology market, not only globally but also in Ukraine. Crowd funding is important for the expansion of banking products and services, as it serves as a mechanism for raising funds to implement banking products, conduct activities to help those in need, and support businesses, as there are often cases when there are no funds to implement important ideas. At the same time, many legal entities and individuals are ready to support a good idea and invest in its implementation. That is why crowd funding platforms exist. Crowd funding has the advantage of allowing you to get funding without the participation of banks, venture capital funds, and stock exchanges. With the advent of crowd funding platforms, this process has become much simpler and more democratic, helping to accumulate funds for a project without loans and copyright transfer [11].

The study results show that Crowd funder is an investment attraction platform that provides access to one of the most dynamic and growing investor networks in the

world. Often, after placing a project on Kick starter or Indiegogo, the author registers it on Crowd funder to attract investors to sell shares [11]. Under the current conditions and military events in Ukraine, banking institutions are constantly looking for new banking products to provide to legal entities and individuals. The result is to provide opportunities for innovators to interact with regulators to ensure the progressive development of technologies and business models in accordance with agreed rules. In most cases, the goal is to identify potential participants, the level of innovation, the size of the business, the legitimacy of the proposed business model, and the amount of contribution to the economy at an early stage. The main prerequisites for the existing advantages and opportunities for further development of public FinTech industries have both positive and negative aspects (Table 2).

Table 2. SWOT analysis of the Fintech industry market in the context of transformation of the financial market

Strengths (S)	Weaknesses (W)
– the potential ability of customers to use financial services amid growing penetration of mobile devices;	– the unattractiveness of the native Fintech industry for investors, including foreign ones. The domestic venture capital ecosystem is still in its infancy;
– high technological level of Fintech projects in the global financial area;	imperfection of the domestic legal framework for regulating the activities of Fintech companies, the presence of regulatory restrictions;
– active improvement of the technological and financial infrastructure necessary for the mass replication of new financial technologies;	– low level of financial literacy and conservative attitude of the population;
– the powerful financial ecosystems of the largest banks are the engine of the domestic Fintech industry;	– uneven development of the necessary infrastructure and technological limitations of existing automated systems;
Opporunities (O)	Threats (T)
– implementation and effective sales of of mass Fintech solutions based on of the largest digital banks;	– low level of patent activity and lack of the latest IT technologies, particularly in the Fintech sector;
– high export potential of Fintech solutions, development of new Fintech solutions unique to the market and the world;	– geopolitical risks that persist as a result of military events;
– active development of payment and and related solutions amid the rapid growth of e-commerce;	– migration of qualified IT personnel beyond the customs border of Ukraine to find favorable conditions for the implementation of Fintech projects;
– training the population to use Fintech services;	– growing social risks: the creation of of new automated services leads to reduction of personnel who used to perform these functions;
– training of more qualified IT specialists with specialization in Fintech.	– cyber fraud in the financial sector and information leakage.

Note: * developed by the authors [10-11]

Summarizing the previous information, we can state that the domestic Fintech market is still in a disappointing state as a result of the military actions in Ukraine. A specific feature is the vector of its development: in Ukraine, the Fintech market has developed largely due to government intervention and the activities of large corporations. The main reason for the current situation is the lack of interest of foreign and domestic investors in domestic startups, «i.e., newly created institutions that are constantly looking for a repeatable and scalable business model in conditions of extreme uncertainty» [8].

Predicting financial activities, banking institutions draw up a business plan. For successful business development, it is worth focusing on: increasing the range of banking products and lower prices than competitors. The modern banking services market requires different approaches, as everything is customer-oriented. Human behavior in the provision of banking products, as well as clear segmentation (targeting) of banking services to each category of customers (customer groups), play an important role. Obviously, in order to achieve this, it is necessary to clearly focus on the social and physiological portrait of a bank customer. The survey conducted by JSC CB Privatbank in Uman in 2021 on the provision of services to customers is presented in (Table 3).

Table 3. A questionnaire survey conducted among 1022 individuals utilizing banking services provided by JSC CB Privatbank in Uman in 2021.

Household and other payments	95 %
Plastic debit card	83 %
Plastic credit card	77 %
Deposit on demand / current account	78 %
Deposit for a fixed term (term)	83 %
Pension contributions	71 %
Cash loans taken out from a bank for any purpose other than car loans and mortgages	93 %
Consumer credit issued in a store	91 %
Auto loan	93 %
Money transfer	88 %
Currency exchanges	80 %
Securities operations	47 %
ATMs	94 %
Self-service bank terminals	82 %

Note: * developed by the authors.

Conclusions. According to the study, at the current stage of development of the domestic banking market, the main problem is the lack of portrait orientation of existing banking products and services, as well as low financial literacy of the population. The availability of current banking products only indicates a mass (standardized) approach to the development of banking products, which affects the level of their consumption. If the current position of domestic banks in terms of the

range of their product line is maintained, the level of provision with banking products and services can only decrease. The current level of computerization of society allows us to conclude that the image of a modern consumer of banking products and services will continue to evolve. After analyzing the dynamics of using the main banking products (deposits, loans, debit and credit cards) of one bank in Uman, Privatbank, the following problem remains: will the banking sector be able to work for the future and anticipate the desires of its customers, focusing on their portrait at the present time, or will the offer of banking products and services still follow the consumer without a portrait orientation.

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Annotation

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Key directions for advancing and applying financial technologies in the context of banking industry digitalization.

The swift advancement of technology permeates every aspect of society, including the banking sector, where the emergence of the promising field of "fintech" or financial technology has sparked rapid growth. This transformation is altering the financial and monetary systems of many countries, transitioning from cash to online

wallets and from traditional bank loans to peer-to-peer online lending. Consequently, established players in the banking industry are adapting their products and services to this changing landscape. Prioritizing innovative development in the financial sector is essential for modernizing banking operations and driving overall economic progress, underscoring the relevance of the chosen research topic.

The article delves into the active integration of digital technologies within the banking sector, highlighting how the digital transformation has reshaped competitive dynamics, shifting the emphasis from pricing concerns to service quality and customer convenience. It elucidates the distinct roles of both small and large banks in digitalization, underscoring the flexibility advantages of smaller institutions in catering to medium-sized business clients.

The following discussion encompasses the prospects for banking system evolution and the imperative of digital technology investment. Emphasis is placed on the significance of competition in the digital realm and the nuances of developing novel banking products. Additionally, a SWOT analysis of the fintech industry market is provided, evaluating its positive and negative facets, along with opportunities and threats to sectoral growth.

The article highlights the notable challenge of insufficient interest from both foreign and domestic investors, which poses a significant obstacle to the advancement of the Ukrainian fintech market.

Key words: banking institutions, fintech industry, financial services market, banking products, financial technologies, digitalization.