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FINTECH MARKET IN UKRAINE: FEATURES, WAYS AND PROSPECTS OF DEVELOPMENT

Abstract. The article presents a study of the peculiar properties, ways and prospects of the development of the Fintech market in Ukraine. The main factors that have distinguished the financial sector of Ukraine over the past five years are highlighted, including the expansion of digitization processes on the international level; the consequences of the global economic crisis that began in 2008; increased competition in financial markets; striving for innovation and high requirements for ease of use, quality and speed of receiving information; quarantine restrictions related to the spread of COVID-19. The main trends of the financial technology market, such as mobile phone services, financial services and social networks, alternative types of payments, marketplaces, new business models, use of artificial intelligence in the financial sphere, digital identification and biometrics were studied. The main advantages and disadvantages of using Fintech are proposed. The main advantages include efficiency and speed, availability, new financial products as well as convenience. Disadvantages may incorporate cyber security, unequal access, privacy issues and regulatory aspects. It was concluded that a number of ways and perspectives can contribute to its development, namely: regulatory reforms, cooperation with the government and the banking sector, security and data protection, implementation of blockchain and cyber protection technologies to ensure security in financial transactions, improvement of technological infrastructure; financing and investments, information literacy and enlightenment. It has been proven that Fintech companies actively use technological innovations to improve financial services and compete in the ever-growing global market at both the global and national levels. Ukraine focuses on the formation of a digital economy and society, where the development of the Fintech market requires the use of blockchain and artificial intelligence (AI). Ukrainian Fintech is focused on expanding the use of blockchain to track cash flows, payments and financial services as well as identity management, contracting and customer dispute resolution. It is also important to adapt artificial intelligence technologies for effective cost management and optimization of business processes for domestic enterprises, which will increase their competitiveness in the EU markets.

Keywords: Fintech market, cyber security, Artificial Intelligence, digitization, financial markets, financial services, blockchain.

INTRODUCTION

Statement of the problem. As a result of the widespread transition to digital technologies in all areas of company activity, the field of financial technology (FinTech) is gaining key importance in the improvement of the financial sector. The term "financial technology" now covers any innovation that affects the way we do business: from the development of digital currencies to the improvement of the accounting process. After the advent of the Internet revolution and the development of the mobile Internet and smartphones, financial technologies developed rapidly. The concept of Fintech, primarily associated with computer solutions worked out for the internal operations of banks and companies, today embraces a wide range of technological solutions in the financial sector - from private to corporate and public finance. The current Fintech market can be seen as a system that brings together various participants in the financial market, including financial technology startups, regulators, banks, international

payment systems, associations of banks and financiers, as well as financial service providers. The development of the FinTech market in Ukraine is important in the context of modernizing the financial sector and increasing the availability of financial services for the population and business.

With the development of the latest computer and information technologies, the processing of large amounts of data, forecasting and modeling involve a large number of factors. This is due to the proliferation of software products in the financial industry. Modern solutions such as business analytics, artificial intelligence, cloud computing and big data management are used by financial companies to improve management and strategic advantages in the market. The financial technology sector is growing rapidly, with FinTech investment forecast to increase to \$335.2 billion by 2028, which means an average growth of 19-25%.

Analysis of the latest research and publications. The results of scientific research in the field of financial innovation are based on the works of such foreign scientists as G. Anderson, J. Barberis, R. Brown, A. Broaddus, A. Wallas, M. Weber, M. Dolat, G. Dorfleitner, R. Lekov, B. Li, M. Miller, R. Merton, J. Munch, A. Rao, P. Tufano, M. Fleuri, L. Hornuf, D. He, V. Khaksar, D. He, A. Herbolt, L. Hornuf, J. Horsley, S. Chishti, G. Schwabe, M. Schmitt. Domestic scientists who are engaged in research of various aspects of financial technologies include A. Boyko, Y. Vergelyuk, S. Volosovich, D. Gordeeva, N. Demchishak, L. Dudynets, L. Zherdetska, L. Kloba, V. Kovalenko, Y. Kovalenko, S. Leonova, A. Mazaraki, N. Panteleeva, S. Papernik, Z. Rudenko, A. Ryabova, A. Semenog, D. Tretyakov, I. Shkolnik, M. Yatsenko.

The purpose of this article is to investigate the characteristics, trends and prospects for the development of the Fintech market in Ukraine.

RESEARCH RESULTS

After the global financial crisis of 2008, banks all over the world began to adapt to new realities. Regulators have tightened capital requirements for banks, set new risk management standards and made requirements for KYC (Know Your Customer) and AML (Anti Money Laundering) procedures more stringent. At the same time, there was a rapid development of technologies. The Internet has become known almost everywhere. The proliferation of smartphones and mobile applications has occurred even in developing countries. Social networks were expanding rapidly. Technological giants such as Amazon, Facebook, Google, Apple, Microsoft created innovative products and services that set new standards for quality, speed and convenience for consumers. The growth of labor migration led to an increase in the volume of remittances.

Technological trends indicate new opportunities for users and improvements to processes that are already in place. This can include minimal transmission latency in streaming services or eSports, as well as production automation. However, innovation is not meant only for business and individual users, but also for states that use latest technological achievements.. Ukraine showed positive developments, rising from 47th to 45th place among 131 countries in the Global Innovation Index rating. The growth in the categories "education" - by 20 positions and "high-tech R&D development" - by 10 positions is especially noticeable. These positive changes testify to Ukraine's great potential and readiness to implement innovative technologies. Over the past five years, the Ukrainian financial sector has made significant progress in the development of financial technologies, which was due to several factors [1-2]:

- expansion of digitization processes at the international level;
- as a result of the global economic crisis that began in 2008;
- increasing competition in financial markets;
- striving for innovation and high requirements for ease of use, quality and speed of

obtaining information;

- quarantine restrictions related to the spread of COVID-19.

In connection with these factors, new participants appeared on the Ukrainian financial market, which are not commercial banks, but organizations that perform traditional banking functions related to payments and money transfers. These organizations, known as Fintech companies, apply highly innovative technologies and provide consumers with existing financial products on more attractive terms and at lower prices. In addition, they develop new payment tools and technical solutions. For example, such Fintech companies as "iPay.ua", "Portmone.com", "GlobalMoney", "City24", "Ukrkart" and others specialize in money transfers; other companies such as Moneyveo, Global Credit, CreditKasa and others provide online loans. Among them are also microfinance organizations and P2P and P2B lending services. A number of Fintech companies (Exmo, Kuna, BTC Trade UA, Tyme, IBox, Bitcoin, Ethereum, Litecoin etc.) offer currency and cryptocurrency trading services.

These Fintech companies use advanced technologies to provide consumers with financial products on more attractive terms and at lower prices, as well as to create new payment tools and technical solutions. The increase in the number of smartphone owners contributes to the activation of processes on the Internet, which leads to the growing popularity of non-cash payments, electronic wallets and other online payments. According to the Ukrainian FinTech Directory 2020, most Fintech companies operate at the expense of the founders' own funds. An additional factor influencing the development of the Fintech market is the initiatives of state bodies, in particular the National Bank of Ukraine and the Ministry of Digital Transformation. During 2021-2022, they actively developed projects that had an impact on the Fintech industry, including:

- the project of the concept of the system of instant payments in Ukraine [3];
- the Law of Ukraine "On Payment Services", which allows the regulator to issue digital currency and expand the product line of the market [4];
- Draft Law of Ukraine "On Virtual Assets" [5];
- The Law of Ukraine "On stimulating the development of the digital economy in Ukraine" [6];
- The Road map of the development of the virtual assets market [7];
- the "Internet subsidy" project for optical connection of villages [8].

The following measures have also become important for the Ukrainian Fintech market:

- creation of Open Banking API HUB in Ukraine;
- participation of Ukrainian companies in the global IT conference Web Summit;
- transition of neobanks from pilot projects to operational mode;
- the issue of NFT (non-fungible tokens) by Ukrainian artists;
- scholarships in cryptocurrency and a project with payment of salary in digital hryvnia.

State bodies that regulate the financial market are developing a legislative framework for the balanced development of Ukrainian Fintech companies. The National Bank of Ukraine has approved the Fintech Development Strategy until 2025, which provides for the creation of a full-fledged Fintech ecosystem with innovative financial services and accessible digital services. The key elements of this Strategy are:

- creation of a regulatory "sandbox" for rapid testing of innovative projects;
- development of financial literacy and involvement of the population and businesses in the process;
- academic base with a focus on open banking [9].

The successful implementation of the Strategy will largely depend on the projects of the National Bank - such as remote identification, the European directive PSD2, instant payments and cyber security.

The main trends of the financial technology market have become the following [10-11].

1. Services via mobile phone. In connection with the appearance of smartphones only 10 years ago, the pace of change in this area is impressive by its speed. Smartphones have occupied an integral part of our lives, becoming a key tool thanks to the availability of the Internet, the prevalence of mobile applications and social networks. The amount of information that people exchange every second is growing rapidly. Much of the data that exists today has only appeared in the last two years. In the world of modern technologies, the phone has become a guide in the field of financial services, allowing easy and convenient payments and money transfers. Almost every second inhabitant of the planet already has a smartphone in his pocket. Screen expansion, the emergence of open application programming interfaces (APIs), and the creation of user-friendly mobile applications in the age of the Internet make financial information accessible and help expand the range of mobile financial services for people.

2. Financial services and social networks. People actively share their personal information on social networks, including data about their lives, work and leisure. Financial technology companies make good use of this data because it includes much more information than any official database can contain. They analyze people's social media profiles, examining their education, occupation, social circle and pastimes, including internet activity. This analysis allows them to conduct risk assessments and provide personalized services to their prospective clients. With the popularity of mobile communication applications, there is an ideal platform for chatbots, which in turn help establish a more trusting relationship between financial institutions and consumers, especially among those who grew up at the turn of the century. Financial technology companies are actively supporting chatbot technologies and using these interactive platforms as a standard for customer service. This contributes to better information and education of consumers.

3. Alternative types of payments. This trend includes payment terminals, contactless and mobile payments, QR payments, electronic and digital wallets, as well as cryptocurrencies. The introduction of e-money regulations in the European Union and the emergence and development of new e-money financial providers such as M-Pesa in Kenya, WeChat Pay and Alipay in China have given millions of people access to the financial sector and various payment methods and financial services. The international standardization of QR code payments in markets such as India and China is leading to a new wave of opportunities that will enable millions of micro- and small businesses to access electronic payments, as for this segment of merchants, using a traditional POS terminal to accept plastic debit/ credit cards was a very expensive pleasure.

4. Marketplaces. The development of non-bank lending services has made it possible to provide loans to clients through intermediary digital platforms that connect lenders with borrowers, using the platforms' own funds or direct lending between participants. This broad category includes P2P direct lending platforms and online balance sheet lending

5. New business models. With the appearance of new players in the financial market, the approach to who pays and for what is changing. Banks mainly sell their products and services in packages. Under this practice, the profitability of some positions covers the unprofitability of other services. With the development of service aggregator platforms that will offer the user all services for free or for a small fee, banks will need to change the conditions for their products: now each service must independently bring profit to the bank and also be competitive in the market. Marketplaces that finance small and medium-sized businesses, at the same time offering microcredits, are becoming direct competitors of banks. Bank clients have already been used to paying commissions. However, in today's innovative world, they are increasingly offered to use the same services for free or much cheaper than from banks. There are already enough successful examples of partnerships between banks and credit platforms with various

models – both P2P and balance sheet lending. In other cases, banks independently develop similar platforms to support their customers. Most often we are talking about SME customers who were previously assessed as more risky because they had insufficient or no credit and business history.

6. One of the current directions is the use of artificial intelligence in the financial sphere. According to a study by the Accenture company, about 54% of bank customers expressed a desire to actively monitor their budget in real time, while 41% expressed readiness to receive advice from artificial intelligence systems regarding financial services and operations [15].

Today, artificial intelligence technologies are already used in chatbots for personalized consultations and voice authentication, which enables customers to perform instant self-service through mobile applications.

Also, artificial intelligence is inextricably linked to the protection of personal data, detection of financial abuse and fraud. As the volume of financial transactions performed by individuals and legal entities (including mobile applications) increases, the safety and security of these transactions becomes an important issue.

7. Digital identification and biometrics. One of the most difficult tasks for banks and other financial service providers is the identification and verification of the identity of users. Several countries, most notably India, have massively invested in biometric-based digital identification systems. Biometrics, which includes voice, fingerprint or facial recognition, is changing the way financial services are delivered. This trend not only meets KYC verification requirements, but also addresses pressing consumer concerns. The complexity of entering passwords and codes deters a large number of customers from using new digital financial solutions. The introduction of the Biometric Unified Payment Interface in India resulted in a 1,000% increase in the volume of digital payment transactions. The advantages and disadvantages of using Fintech are presented in Table 1. The main advantages include: efficiency and speed, accessibility, new financial products, convenience. Disadvantages can be as follows: cyber security, unequal access, privacy issues, regulatory aspects [16-17].

Table 1

Advantages and disadvantages of using FinTech.

Advantages of using FinTech	Disadvantages of using FinTech
Efficiency and speed: The use of technology enables financial transactions to be carried out faster and more efficiently, reducing processing times and making payment processes more automated	Cybersecurity: The development of technology also means an increase in cyber security threats, as financial data becomes more vulnerable to cyberattacks and theft
Accessibility: Financial services are becoming more accessible to a wide range of users through mobile applications, online platforms and other innovative tools	Inequality of access: Not all users have the same level of access to technology, which can create inequality in the use of financial services
New financial products: FinTech creates new types of financial products that can be more personalized and meet the needs of specific customers	Privacy issues: Increased sharing of data and information can create privacy issues and leakage of confidential information

Continuation of Table 1

Convenience: The use of Fintech makes financial transactions more convenient, allowing customers to transact from anywhere at any time	Regulatory aspects: The rapid development of technology in the field of finance requires appropriate regulatory mechanisms and legislative changes to ensure the protection of users and the efficient functioning of the market
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Source: Compiled by the author based on [16-19]

At the same time, a number of ways and perspectives can contribute to its development, namely [18-19]:

1. Regulatory reforms. Improving and simplifying the legal environment for FinTech startups. Introduction of special regulatory mechanisms to promote innovation in the financial sector

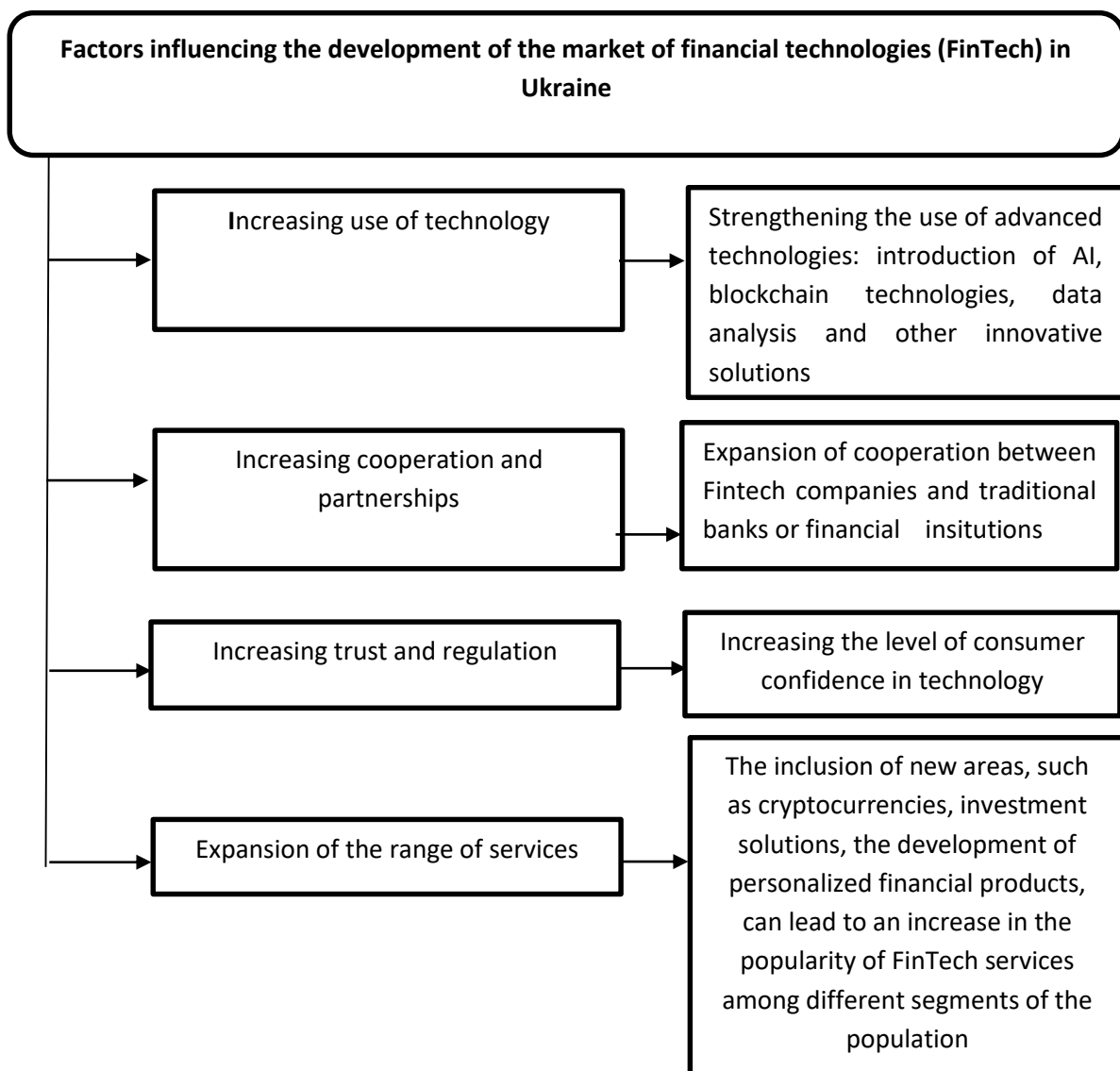


Fig.1. Factors influencing the development of the market of financial technologies (Fintech) in Ukraine

2. Cooperation with the government and the banking sector. Development of partnership programs between Fintech companies and traditional banks for the introduction of the latest technologies. Government support and financing of innovative projects in the field of Fintech.

3. Security and data protection. Development of security standards to protect the confidentiality of financial data. Implementation of blockchain and cyber security technologies to ensure security in financial transactions.

4. Improvement of technological infrastructure. Development and implementation of new technologies such as artificial intelligence, machine learning and data analysis to improve financial services. Creation of innovative payment systems and mobile applications for convenient access to financial services.

5. Financing and investments. Creation of investment funds and support for investing in Fintech startups and innovative projects. Providing financial support and grants for the development of innovative ideas in the Fintech sector.

6. Information literacy and enlightenment. Conducting educational campaigns for consumers and businesses regarding the benefits of using Fintech services. Providing accessible information about the risks and benefits of using digital financial services.

These directions can contribute to the development of the FinTech market in Ukraine, providing wider access to financial services, improved operational efficiency and promoting innovation in the financial sector.

The market of financial technologies in Ukraine is at the stage of significant expansion and development. This sector plays a key role in the innovation of the financial sphere, offering new approaches to financial services and customer service. The prospects for its development can be reflected taking into account the following key factors presented in Table 1.

CONCLUSIONS AND PROSPECTS FOR FURTHER RESEARCH

Fintech companies are actively using technological innovations to improve financial services and compete in a global market that is constantly growing both globally and nationally. Ukraine focuses on the formation of a digital economy and society, where the development of the Fintech market requires the use of blockchain and artificial intelligence. Ukrainian Fintech is focused on expanding the use of blockchain to track cash flows, payments and financial services, as well as identity management, contracting and customer dispute resolution. It is also important to adapt artificial intelligence technologies for effective cost management and optimization of business processes for domestic enterprises, which will increase their competitiveness in the EU markets.

The modern global Fintech market combines advanced financial and technological achievements. A similar trend is observed in Ukraine. The pandemic caused and developed this industry, accelerating its growth and penetration into the conditions of the national economy. The continuation of the development of Fintech in Ukraine, based on blockchain and artificial intelligence technologies, requires support at the level of legislation, the development of specific digitization strategies, the formation of digital skills, and an increase in the level of financial literacy among the population and businesses. This will help expand the range of financial services and ensure their quality, which meets the needs of customers and global standards.

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РИНОК FINTECH В УКРАЇНІ: ОСОБЛИВОСТІ, ШЛЯХИ ТА ПЕРСПЕКТИВИ РОЗВИТКУ

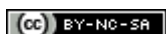
Анотація. У статті представлено дослідження особливостей, шляхів та перспектив розвитку ринку Fintech в Україні. Виокремлено основні фактори, якими відзначився фінансовий сектор України протягом останніх п'яти років, серед яких розширення процесів цифровізації на міжнародному рівні; наслідки світової економічної кризи, яка розпочалась у 2008 році; зростання конкуренції на фінансових ринках; прагнення до інновацій та високі вимогами до зручності користування, якості та швидкості отримання інформації; карантинні обмеження, пов'язані з розповсюдженням COVID-19. Досліджені основні тренди ринку фінансових технологій, такі як послуги через мобільний телефон; фінансові послуги та соціальні мережі; альтернативні види платежів; маркетплейси; нові бізнес-моделі; використання штучного інтелекту у фінансовій сфері; цифрова ідентифікація та біометрія. Запропоновані основні переваги та недоліки використання FinTech. До основних переваг можна віднести: ефективність та швидкість, доступність, нові фінансові продукти, зручність. Недоліками можуть бути: кібербезпека, нерівність доступу, проблеми з приватністю, регуляторні аспекти. Зроблено висновок, про те що низка шляхів та перспектив може сприяти його розвитку, а саме: регуляторні реформи; співпраця з урядом та банківським сектором; безпека та захист даних; імплементація технологій блокчейну та кіберзахисту для забезпечення безпеки у фінансових операціях; вдосконалення технологічної інфраструктури; фінансування та інвестиції; інформаційна освіченість та просвітництво. Доведено, що фінтех-компанії активно використовують технологічні інновації для вдосконалення фінансових послуг і конкурують на світовому ринку, що постійно зростає як на глобальному, так і національному рівнях. Україна зосереджується на формуванні цифрової економіки та суспільства, де розвиток ринку фінтех вимагає використання блокчейну та штучного інтелекту. Український фінтех акцентується на розширенні використання блокчейну для відстеження грошових потоків, платежів та фінансових послуг, а також на управлінні ідентифікацією, укладенні контрактів та врегулюванні спорів з клієнтами. Також важлива адаптація технологій штучного інтелекту для ефективного управління витратами та оптимізації бізнес-процесів для вітчизняних підприємств, що підвищить їх конкурентоспроможність на ринках ЄС.

Ключові слова: ринок FinTech; кібербезпека; штучний інтелект; цифровізація; фінансові ринки; фінансові послуги; блокчейн.

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