



ЕКОНОМІЧНІ ГОРИЗОНТИ

Homepage: <http://eh.udpu.edu.ua>

ISSN 2522-9273 (print)
ISSN 2616-5236 (online)

Economies' Horizons, No.
4(19), pp. 27-41.

DOI: [https://doi.org/10.31499/2616-5236.4\(19\).2021.2483115](https://doi.org/10.31499/2616-5236.4(19).2021.2483115)

UDC 336.71:338.28

JEL: C88, G21

FINANCIAL TECHNOLOGIES IN THE CONTEXT OF MODERN ENTERPRISE MANAGEMENT PROCESSES IN DOMESTIC AND INTERNATIONAL MARKETS

Anastasiya B. Makarenko¹, Senior Lecturer

Yuliia L. Tatoryntseva², Candidate of Economic Sciences, Associate Professor

Alina B. Zubkova³, Candidate of Economic Sciences, Associate Professor

Sophia V. Pilipenko⁴, Student of Economic Sciences, Associate Professor

Inna S. Parkhuts⁵, Student of Economic Sciences, Associate Professor

Object of research. The object of the research is the economic processes that take place in Ukraine during the development of financial technologies. One of the most problematic places is the crisis which was in 2008, at the present time many problems have emerged from the financial and economic side that had to be solved.

Methodology. In the course of the study, the methods of deduction and induction were used to determine the peculiarities of the development of financial technologies in Ukraine.

Findings. The state of financial technologies in Ukraine was analyzed at different times, during crises and after, the victories highlighted at the present time in this area, as well as the problems posed still need to be corrected. The presented options for solving some of the problems allows us to conclude that the development of financial technology is growing rapidly, passing and solving past issues and problems and setting new tasks for itself, although this industry is still very young.

Originality. Originality lies in the definition of the peculiarities of the development of financial technologies in Ukraine, as a new specific industry.

¹ National Technical University «Kharkiv Polytechnic Institute»; Senior Lecturer of the Department of International Business and Finance; ORCID : <https://orcid.org/0000-0002-1816-130X>; e-mail: a_makarenko@hotmail.com.

² National Technical University «Kharkiv Polytechnic Institute»; Candidate of Economic Sciences, Associate Professor of the Department of International Business and Finance; ORCID : <https://orcid.org/0000-0003-2910-9280>; e-mail: 7518618@gmail.com.

³ National Technical University «Kharkiv Polytechnic Institute»; Candidate of Economic Sciences, Associate Professor of the Department of International Business and Finance; ORCID : <https://orcid.org/0000-0002-4478-181X>; e-mail: 7518618@gmail.com.

⁴ National Technical University «Kharkiv Polytechnic Institute»; Student of Economic Sciences, Associate Professor of the Department of International Business and Finance; ORCID : <https://orcid.org/0000-0002-9942-6719>; e-mail: ssalieri17@gmail.com.

⁵ National Technical University «Kharkiv Polytechnic Institute»; Student of Economic Sciences, Associate Professor of the Department of International Business and Finance; ORCID : <https://orcid.org/0000-0002-1545-3905>; e-mail: iparkhuts@gmail.com.

Practical and / or theoretical value. The practical significance lies in the fact that the article describes the economic and financial problems of the country in crisis conditions and after them, how the development of financial technologies affects society, what consequences the country experiences, what problems there are and what the solutions will be. The results obtained will be used in further research for statistical forecasting of the success of the development of financial technologies in Ukraine. Clarified the definition of the essence of the category of "financial technology", which we consider as a synthesis of digital technologies and innovations in the financial sector, used for the provision, expansion and distribution of financial services by technology companies. For the effective and safe functioning and development of digital financial technologies, it is necessary to adhere to a competent and systematic approach on the part of the state on the legal regulation of the Fintech sphere. In today's realities, the implementation of the above measures will contribute to the prospective development of Fintech in Ukraine and the integration of financial technologies into the main spheres of society.

Keywords: FinTech, financial technologies, AML, KYC, financial system, financial strategy.

ФІНАНСОВІ ТЕХНОЛОГІЇ В КОНТЕКСТІ СУЧАСНИХ ПРОЦЕСІВ УПРАВЛІННЯ ПІДПРИЄМСТВАМИ НА ВІТЧИЗНЯНИХ І МІЖНАРОДНИХ РИНКАХ

Анастасія Борисівна Макаренко¹, старший викладач

Юлія Леонідівна Татаринцева², к.е.н., доцент

Аліна Болеславівна Зубкова³, к.е.н., доцент

Софія Валеріївна Пилипенко⁴, студентка економічних наук, доцент

Інна Сергіївна Пархуц⁵, студентка економічних наук, доцент

Анотація. Об'єктом дослідження є економічні процеси, які відбуваються в Україні під час розвитку фінансових технологій. Одним з найбільш проблемних місць є криза яка була у 2008 році, у цей час проявилось багато проблем з фінансово-економічної сторони, які треба було вирішувати.

Методологія. В ході дослідження використовувалися методи дедукції та індукції при визначенні особливостей розвитку фінансових технологій в Україні.

¹ Національний технічний університет «Харківський політехнічний інститут»; старший викладач кафедри міжнародного бізнесу та фінансів; ORCID : <https://orcid.org/0000-0002-1816-130X>; e-mail: a_makarenko@hotmail.com.

² Національний технічний університет «Харківський політехнічний інститут»; к.е.н., доцент кафедри міжнародного бізнесу та фінансів; ORCID : <https://orcid.org/0000-0003-2910-9280>; e-mail: 7518618@gmail.com.

³ Національний технічний університет «Харківський політехнічний інститут»; к.е.н., доцент кафедри міжнародного бізнесу та фінансів; ORCID : <https://orcid.org/0000-0002-4478-181X>; e-mail: 7518618@gmail.com.

⁴ Національний технічний університет «Харківський політехнічний інститут»; студентка економічних наук, доцент кафедри міжнародного бізнесу та фінансів; ORCID : <https://orcid.org/0000-0002-9942-6719>; e-mail: ssalieri17@gmail.com.

⁵ Національний технічний університет «Харківський політехнічний інститут»; студентка економічних наук, доцент кафедри міжнародного бізнесу та фінансів; ORCID : <https://orcid.org/0000-0002-1545-3905>; e-mail: iparhuts@gmail.com.

Результати. Було проаналізовано стан фінансових технологій в Україні за різні часи, під час криз і після, виокремлені перемоги за цей час у цій галузі, а також поставлені проблеми які ще треба виправити. Представлені варіанти рішень деяких проблем, що дає змогу зробити висновок, що розвиток фінансових технологій продовжує стрімко зростати, проходить та вирішує минулі питання та проблеми і ставить перед собою нові задачі, хоча ця галузь ще дуже молода.

Наукова новизна. Наукова новизна полягає у визначенні особливості розвитку фінансових технологій в Україні, як нової специфічної галузі.

Практична та (або) теоретична значущість. Практична значущість полягає в тому, що у статті окреслені економічні та фінансові проблеми країни у кризових станах та після них, як розвиток фінансових технологій впливає на суспільство, які наслідки відчуває на собі країна, які є проблеми та якими будуть рішення. Отримані результати будуть використані в подальших дослідженнях для статистичного прогнозування успіхів розвитку фінансових технологій в Україні. Точно визначено сутність категорії «фінансові технології», яку ми розглядаємо як синтез цифрових технологій та інновацій у фінансовому секторі, що використовуються для надання, розширення та поширення фінансових послуг технологічними компаніями. Вітчизняна фінтех-індустрія знаходиться на стадії становлення і значно поступається західним країнам через низку причин. Для ефективного та безпечного функціонування та розвитку цифрових фінансових технологій необхідно дотримуватися грамотного та системного підходу з боку держави до правового регулювання фінтех-сфери; запровадження відкритого банкінгу через затвердження в Україні норм європейської директиви PSD2; сприяння в процесі співпраці між банками та фінтех-компаніями шляхом залучення фінтех компаній до аутсорсингу; підвищення рівня фінансової грамотності населення на основі простоти та доступності інформаційного забезпечення; формування компетентних кадрів у сфері Fintech. У сучасних реаліях реалізація вищезазначених заходів сприятиме перспективному розвитку Fintech в Україні та інтеграції фінансових технологій в основні сфери життя суспільства.

Ключові слова: FinTech, фінансові технології, AML, KYC, фінансова система, фінансова стратегія.

Formulation of the problem in general.

The emergence and improvement of financial innovations have always been and remain a component of the formula for successful socio-economic development. Implementation of financial innovations is focused on effective management of financial resources and risks in order to ensure development, competitiveness, financial stability in conditions of economic instability [1].

FinTech is an industry that uses technology to improve its financial performance. These are new applications, processes, products, business models in the field of financial services, consisting of one or more additional financial services and provided as a comprehensive process via the Internet [2]. FinTech not only promotes convenience, speed, reduced cost of services, but also creates networks that can easily connect people with common interests, in particular,

those who have something and those who are looking for it, or those who are looking for partners to share.

FinTech's development has been particularly rapid since the 2008 global financial and economic crisis, as problems emerge and are an ideal environment for startups to address these issues. The crisis has led to massive job cuts in the financial sector, forcing people to look for new opportunities. This is how FinTech startups, led by highly qualified unemployed people, began to spread. In Ukraine, the top management of FinTech providers mainly consists of former bankers (70%) with experience in large commercial banks, including Privatbank, FUIB, Raiffeisen Bank Aval, Alfa-Bank, Universal Bank. About 23% of managers left the business and only 7% - from the IT sector [3].

The domestic fintech sector is in its infancy and is far behind Western countries; The rapid development of the industry began in 2014, and now in Ukraine there are more than a hundred companies participating in the Ukrainian fintech market, and the vast majority of them have no long-term practical experience. There is an obvious need to further improve the regulation of the fintech sector, especially the creation of an appropriate legal framework; there is a need to form a developed ecosystem for business startups on the model of foreign countries and the availability of accelerators that would assist fintech companies in increasing the volume of activities in the early stages of development. It is important to identify ways to develop an innovative financial market, ways to establish strategic partnerships with traditional participants in the financial sector.

Object of research and analysis of

existing solutions to problems.

Object of study. The object of the research is the economic processes that take place in Ukraine during the development of financial technologies. One of the most problematic places is the crisis which was in 2008, at the present time many problems have emerged from the financial and economic side that had to be solved.

Analysis of recent research and publications. The theoretical basis for the study of innovations, their content characteristics, causal links with economic development is laid in the works of A. Smith, D. Ricardo, J. Schumpeter, T. Mensch, M. Kondratiev, M. Tugan-Baranovsky, G. Clark. Many foreign and domestic scientists, such as Yu. Bazhal, J. Van Dane, A. Galchynsky, M. Miller, H. Minsky, F. Myshkin, pay considerable attention to the essence and content of innovation theory in general and in the financial sphere in particular, R. Merton, P. Tufano, J. K. Van Horn, J. Finnerty, L. Fedulova, W. Sharp.

Formulation of the purpose of the article and research objectives.

The aim of the work is to assess the status and identify trends in Ukrainian fintech and the factors that play a deterrent role in the penetration of fintech services, ways to eliminate them to ensure positive dynamics in this segment.

Presentation of the main material of the study with a full justification of the obtained scientific results.

Financial technology, or Fintech - an industry consisting of companies that use technology and innovation to compete with traditional financial institutions in the face of banks and intermediaries in the financial services market [8]. N. O. Morozko uses the term "financial

technology space" to describe the term "FinTech" and defines it as an industry that includes technologies for banking and corporate finance, capital markets, financial analytics, payments and personal finance management, in addition, includes definition of private investment and private venture investment [3, p. 10].

Based on the generalization of the above interpretations, financial technologies should be understood as technologies used in the financial industry to optimize costs, increase added value in their products, speed of various processes, security, etc.

After the global financial crisis in 2008, banks in all countries were forced to adapt to the new world. Regulators have tightened bank capital requirements, introduced new risk management standards and more stringent requirements for KYC (Know Your Customer) and AML (Anti Money Laundering) procedures.

At the same time, technology and innovation have developed rapidly:

1. The Internet has become widespread;
2. Smartphones and mobile

applications have appeared and are gaining popularity, even in developing countries;

3. Social networks are spreading fast;

4. Big Five technology companies (Amazon, Facebook, Google, Apple, Microsoft) have developed innovative products and services that set new standards for quality, speed and user-friendliness;

5. Labor migration has increased and, accordingly, remittances have increased;

6. Small and medium-sized businesses began to look for alternative ways to finance their activities;

7. Private investors who used to be involved in real estate have started looking for new ways to make money.

With the advent of new technologies, banks' focus on internal processes due to the crisis of 2008 and the desire of users to experiment with digital services have led to the emergence and growth of new FinTech companies, lending and banking technologies. Other global trends include mobile financial services, financial and account management, remittances, consulting, insurance technology, crowdfunding, P2P lending, blockchain and cryptocurrencies.

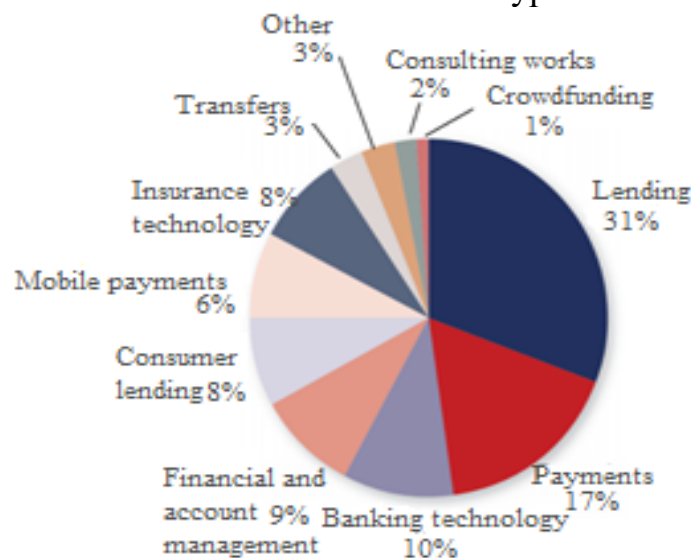


Fig. 1. Global investment in Fintech companies

Reference: made by authors on the basis [1]

In Ukraine, FinTech is in its infancy and has more than 60 companies with varying degrees of maturity. In fact, the largest FinTech example in the country was PrivatBank (before nationalization), whose technological services were ahead of not only the local Ukrainian market, but also the European one. FinTech began to attract the attention of players in the financial sector of Ukraine only in 2017 after a series of events and forums dedicated to this topic. It is expected that more efforts and support for the development of this important area will take place in 2018.

In Ukraine, as in the rest of the world, the evolution of FinTech took place first in response to the banking crisis of 2008-2009, and then, not so long ago, as a result of the crisis of 2013-2014. During this period:

1. About 20 European banks operating in the Ukrainian market suspended lending and reduced their presence in the local market due to the 2008 financial crisis.

2. There was a sharp drop in GDP in 2009 and 2015, which was accompanied by a strong devaluation of the national currency and high inflation. The purchasing power of the population was rapidly declining, which, in turn, led to new bankruptcies in business. The share of problem assets in banks grew rapidly, which was reflected in the decrease in consumer lending by Ukrainian banks.

3. Reduction in the number and consolidation of banks from 175 in January 2008 to 88 in November 2017.

4. Further reduction in the number of bank branches, which led to restrictions on access to banking services.

5. Loss of public confidence in the banking sector.

Along with the financial crisis of 2008-2009, the first players among FinTech startups began to appear in Ukraine. For the most part, these projects were created in the direction of payments and transfers. The vast majority of all FinTech startups (58%) have appeared since 2015.

The development of FinTech is actively supported by a number of various initiatives and activities of the National Bank of Ukraine. The National Bank of Ukraine approved the Comprehensive Program for the Development of the Financial Sector of Ukraine until 2020 (Resolution №391 of June 18, 2017), which provides for a number of initiatives:

1. Non-cash economy exchange rate 2021;
 2. Transition to ISO20022 standards;
 3. Exchange of documents in electronic format using an electronic signature;
 4. Cancel stamps, seals and paper copies;
 5. Storage of documents in electronic format;
 6. Remote identification;
 7. Ability to order financial services online;
 8. Electronic viewing of scanned copies and signing of cash documents;
 9. Ability to use the Bank ID system for remote identification of bank customers;
 10. Protection of the rights of users of financial services;
 11. Improving the financial literacy of the population;
 12. New rules to encourage licensing of new players in the payments sector.
- Many of the FinTech companies created in Ukraine are aimed at the

common European market. The intellectual resource is exported to other countries. But, on the positive side, the infrastructure necessary for the development of the startup environment is being formed, in the form of accelerators and incubators. However, in order to stimulate the growth of new projects, it is necessary to go a long way to create the right conditions for doing business in the country – this applies to the regulatory environment and changes in legislation and tax policy for innovative companies, as well as simplicity and transparency in creating startups.

There are several factors that are unique to Ukraine, and in combination with the developed infrastructure contribute to the development of FinTech.

Infrastructure. Internet penetration in

Ukraine continued to grow rapidly between 2008 and 2017, and the Internet became available to the majority of the population. Only 24% of the adult population had access to the Internet in 2008, up from 63% in 2017.

The Internet and its speed in Ukraine are constantly improving, including due to lower costs and increased access, especially applies to mobile internet. Continuous investment and support for high-speed Internet will further contribute to the development and use of FinTech services and products in the country. The planned movement towards open APIs according to PSD2 will also contribute to the development of FinTech in Ukraine. In response to the demand from FinTech companies, acceleration and incubation programs are created.

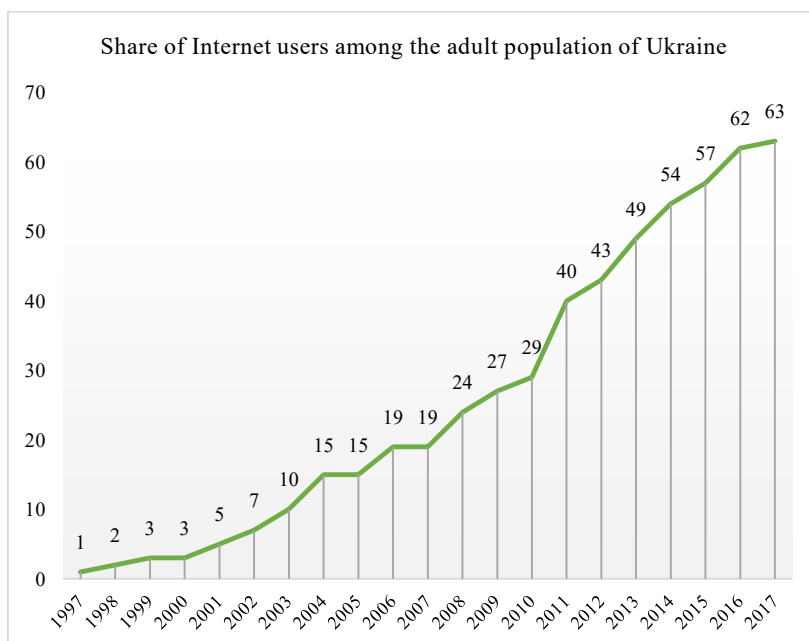


Fig. 2. Share of Internet users among the adult population of Ukraine

Reference: made by authors on the basis of [2]

Another important factor in the infrastructure that hinders the development of FinTech in Ukraine is the lack of electronic identification. Electronic passports have just appeared in the country. The Mobile ID launch initiative, which is currently in test mode

and is expected to launch in 2018, could help address e-identification.

Such a system will allow any client who has already passed the KYC procedure in one bank and received a national Bank ID to use it to open accounts in any other bank. Although

remote account opening and the use of the multi-level KYC procedure have not yet been implemented, there are discussions about the implementation of PSD2, which will make this possible. There are third-party payment kiosks on the market, but their network is limited to cities, so their further expansion would increase access to and use of electronic payments in rural areas. Despite some limitations in agency networks, steps to make greater use of the existing physical infrastructure of post offices and other networks would open up access to rural and mobile-restricted areas, as well as to those who do not yet trust e-finance.

Legal and regulatory environment. The environment for supporting FinTech and other startups is currently being improved.

Among the important changes that have recently been introduced in Ukrainian legislation are:

1. Permission to sign invoices and transactions with an electronic signature;
2. Banks are no longer required to translate documents into Ukrainian if they are in English;
3. Ukrainian IT companies continue to enjoy simplified taxation – 5% per year;
4. The National Bank of Ukraine continues to gradually lift restrictions on the repatriation of dividends – the limit has been increased to USD 5,000,000 per legal entity per year;
5. The National Bank of Ukraine actively advocates the adoption of European Union directives, for example in PSD2, in domestic legislation;
6. Recent adoption of the law on electronic identification and trust services for electronic transactions in the internal market (Law on electronic trust services);

7. Access to capital and investment. The Ukrainian government regularly declares support for foreign investment. In general, from a regulatory point of view, starting and doing business in Ukraine for foreign investors does not differ from the conditions for doing business for domestic investors. The requirement to obtain a special permit from public services for foreign direct investment has recently been abolished. Ukrainian startups are increasingly using crowdfunding platforms for funding. According to a study by MasterCard, about 87% of representatives of the banking sector are ready to partner with FinTech startups. The creation of new acceleration programs in the country will reduce the costs of FinTech startups and stimulate initial funding.

8. Qualification. Ukraine maintains high standards of education, especially in mathematics and science, and talented IT professionals support the global FinTech industry. Thus, FinTech-unicorn "Transferwise", valued at more than \$ 1.1 billion. USA, has a team of software developers in Cherkasy. Although high qualifications have already been achieved in the field of information technology, the Ukrainian FinTech sector will benefit even more from retaining and attracting financial professionals who can provide the necessary assistance.

Results of the survey of Ukrainian FinTech providers Questionnaires with questions about commercial activities were sent to 80 FinTech providers, of which 59 completed questionnaires. Unit.City, 1991 Open Data Incubator, FinTechCluster and BankOnline helped to distribute the questionnaires. According to the survey, FinTech providers are working in the following areas:

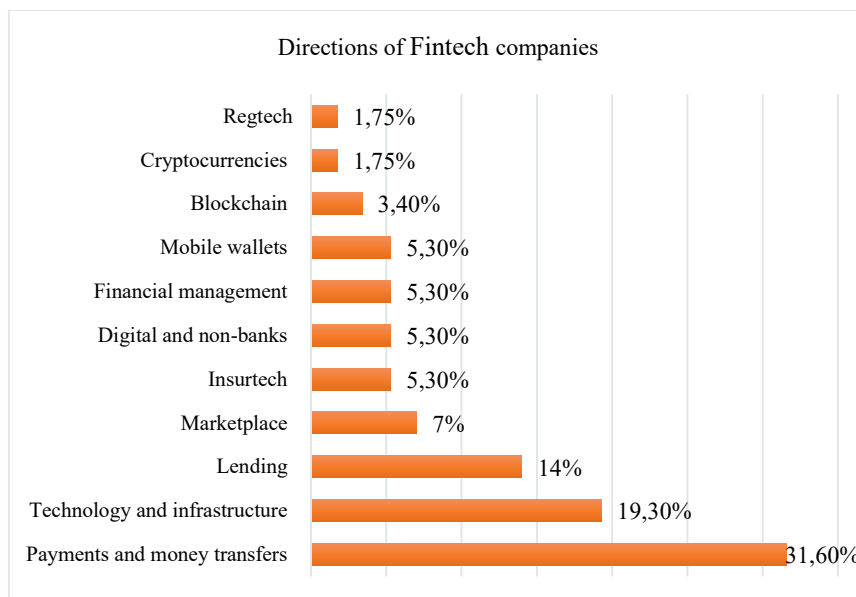


Fig. 3. Directions of Fintech companies

Reference: made by authors on the basis of [12]

Market maturity. 40% of FinTech providers were established before 2015, while 60% of providers have appeared in the last three years. About 84% of FinTech companies have already started offering products and services, and 16% are still in the process of being formed.

Startup founders. The founders are mostly individuals with experience in IT (65%) and finance (30%), most of whom are fluent in English. It is important to note that the top management of FinTech providers mainly consists of former bankers (70%) with experience in large commercial banks, including Privatbank, FUIB, Raiffeisen Bank Aval, Alfa-Bank and Universal Bank. About 23% of managers left the business and only 7% – from the IT sector.

Market segmentation. More than 37% of FinTech providers are engaged in the market segment of payments between legal entities (B2B) and are aimed at servicing small and medium enterprises.

Partnerships. Some of the FinTech providers maintain partnerships with banks and international payment systems. This includes platforms for P2P card

transactions, payment cards with the logos of several companies and other payment services. These are mainly banks such as FUIB, OschadBank, Alfa-Bank, Raiffeisen Bank Aval, TASKOMBANK and international payment systems.

Market maturity. 40% of FinTech providers were established before 2015, while 60% of providers have appeared in the last three years. About 84% of FinTech companies have already started offering products and services, and 16% are still in the process of being formed.

Startup founders. The founders are mostly individuals with experience in IT (65%) and finance (30%), most of whom are fluent in English. It is important to note that the top management of FinTech providers mainly consists of former bankers (70%) with experience in large commercial banks, including Privatbank, FUIB, Raiffeisen Bank Aval, Alfa-Bank and Universal Bank. About 23% of managers left the business and only 7% – from the IT sector.

Market segmentation. More than 37% of FinTech providers are engaged in the market segment of payments between

legal entities (B2B) and are aimed at servicing small and medium enterprises.

Partnerships. Some of the FinTech providers maintain partnerships with banks and international payment systems. This includes platforms for P2P card

transactions, payment cards with the logos of several companies and other payment services. These are mainly banks such as FUIB, OschaBank, Alfa-Bank, Raiffeisen Bank Aval, TASKOMBANK and international payment systems.

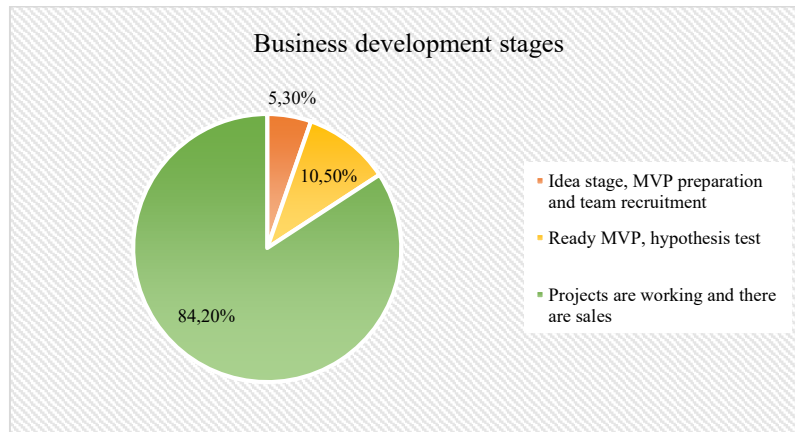


Fig. 4. Business development stages

Reference: made by authors on the basis of [12]

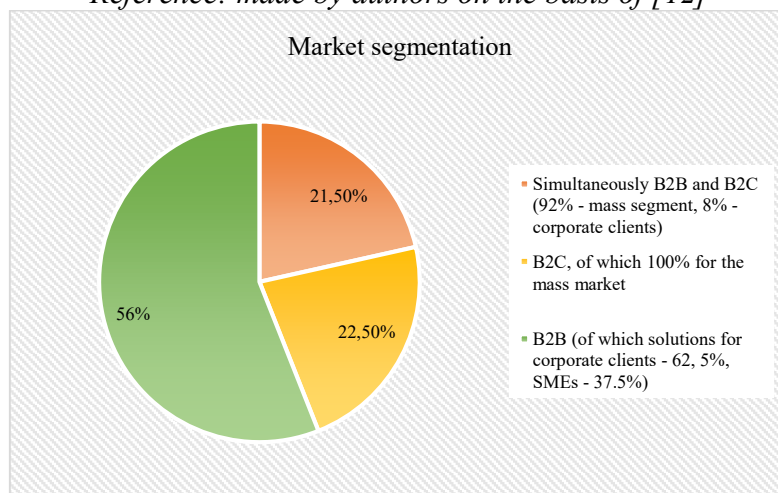


Fig. 5. Market segmentation

Reference: made by authors on the basis of [12]

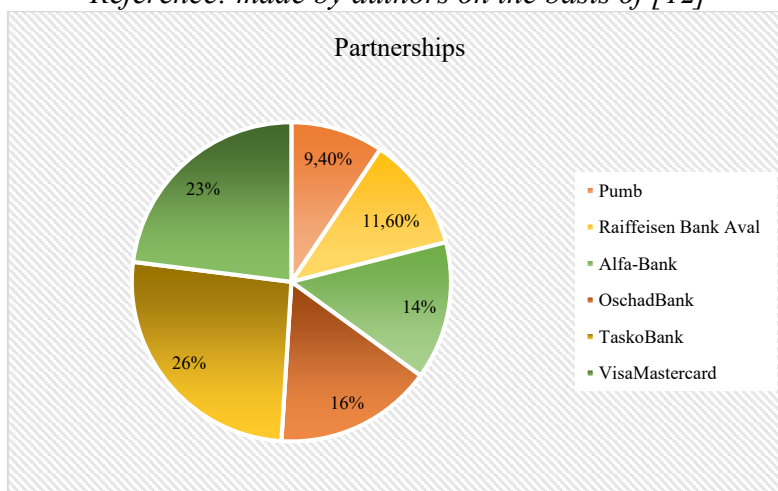


Fig. 6. Partnerships

Reference: made by authors on the basis of [12]

Financing. Although many FinTech companies use their own funds to finance operating activities, a significant

proportion (49%) seek financing from external investors.

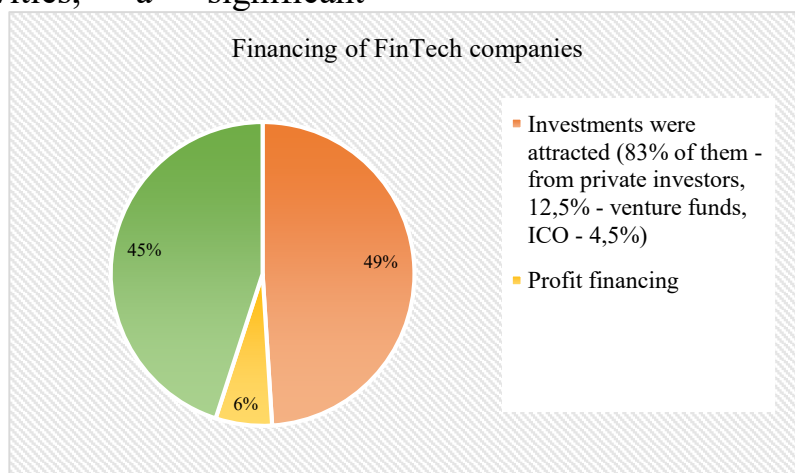


Fig. 7. Financing of FinTech companies

Reference: made by authors on the basis of [12]

Fintech Hot and Cold Topics for 2021. As part of a survey of FinTech providers, they were asked what topics they considered “hot” in the market in 2021. Among the hot topics for 2021, Fintech providers identified the following: e-banking, automation, biometric identification, machine learning and artificial intelligence (AI), forecasting and modeling, smart contracts, chat bots, blockchain, Running Date, digitalization of all registries, ISO, IT security, cybersecurity and payment security, and there is also an interest in open APIs.

For those that were “hot” but became “cold” over the past year, Fintech providers noted e-wallets, mobile applications, cash transactions, mobile technologies, payment cards and Internet acquiring.

Analysis shows that the Ukrainian Fintech market lacks accelerators that would help companies develop in the early stages. In addition, in contrast to the generally accepted practice, many companies in Ukraine are trying to enter the market with a finished product. Therefore, the majority of Ukrainian Fintechs are at the stage of the start of

sales or business scaling in terms of the degree of development, and only one in five is mature.

Banks are the largest players in the Ukrainian Fintech market. The effective development of the national Fintech market largely depends on the cooperation and partnership of banks with Fintech companies that are intensively working on the development of financial technologies. According to statistics, 79% of banks have systems that are difficult to integrate with, and only 6% of banks have achieved the desired ROI from collaboration with Fintech.

In Ukraine, the most technologically advanced banks, in particular SberBank, UkrgasBank, Raiffeisen Bank Aval, Alfa Bank, UkrSibBank, PUMB, OTP Bank and MegaBank, have joint projects with Fintech companies. The only exception is PrivatBank, which has its own powerful development center. PrivatBank continues to actively digitalize its services and financial services, which have long gone beyond classical banking and are forming a new digital ecosystem in Ukraine at the intersection of financial services, retail and e-commerce. In

addition, these banks have their own incubation and acceleration centers for startups - they expect to get a good return from them in the form of innovative products and services that can be implemented at home. In the coming year, according to experts, the main areas of cooperation between banks and Fintech companies will be payment services, artificial intelligence systems, big data, business process automation and cybersecurity.

The analysis of the functioning of the Ukrainian Fintech technologies market makes it possible to separate the following problems that hinder its progress, namely:

- unstable economic situation in the country, volatility of the national currency;
- imperfection of state regulation of the sphere of financial technologies;
- unfavorable investment climate in the country (lack of interest of foreign and Ukrainian investors in the process of investing in domestic startups);
- insufficient and uneven development of the necessary infrastructure (telecommunications and the Internet), the quality and cost of Internet and mobile services telephone connection;
- lack of specialists in the field of new financial and information technologies;
- low level of patent activity, almost complete absence of breakthrough IT technologies, including in the field of Fintech;
- underdevelopment of the venture investment system;
- concentration of technological competencies directly in the banking system;

– insufficiently high technological and financial literacy of the population as a whole, falling real disposable incomes of the population, focus on economy and conservative conservation.

To ensure the effective functioning of the Fintech ecosystem, as objectively the most important part of the competitiveness of the financial system of Ukraine, it is necessary to implement coordinated measures:

1. Compliance with a balanced approach in the field of state regulation of the financial technology market. On the one hand, the task of the state is to create a favorable environment for the development of innovations, on the other hand, to control and minimize the risks associated with the functioning of the Fintech market.

2. Introduction of open banking through the approval of the European directive PSD2 in Ukraine. Open banking assumes the "unification" of various banks and platforms into a single system and the provision of access to user data from different "points". The National Bank of Ukraine has already developed a concept and initiated the implementation of the standard at the legislative level. The main advantage of this initiative is that open banking is an incentive for competition.

3. Facilitating the process of cooperation between banks and Fintech companies by attracting Fintech companies to outsourcing. They will help you implement projects that require speed and flexibility. This trend also stimulates investment in startups from banks.

4. Increasing the level of financial literacy of the population, based on the simplicity and availability of information provision, ergonomic and design solutions, the implementation of elements

of artificial intelligence, the development of robotic consulting and machine learning in the financial sector.

5. The formation of human resources provides for the provision in the future of access to specialists with key competencies for the Fintech area, the creation of an attractive education system, as well as the implementation of a favorable immigration policy.

An important moment in the development of Fintech is the active participation of the National Bank of Ukraine, which not only acts as a mega-regulator, but also acts as an initiator and platform for the development of Fintech projects. With his participation, in January 2020, the "Strategy for the Development of the Financial Sector of Ukraine until 2025" was approved – a step-by-step plan for creating a full-fledged Fintech ecosystem in Ukraine with innovative financial services and affordable digital services.

"The main objectives of the strategy are the sustainable development of innovations, the development of the Cashless economy, and the improvement of financial literacy of consumers and businesses. The purpose of this top-level document is the development of an innovative market with large-scale financial inclusion and convenient and safe-to-use services and products, affordable and distribution channels", – said the Deputy Chairman of the National Bank of Ukraine Serhiy Kholod.

The strategy is based on the key directions set by the Strategy for the Development of the Financial Sector of Ukraine until 2025, which the National Bank and other regulators presented to the financial market earlier this year.

In particular, this document structures and details the trends and directions of

development of financial innovation for the next five years.

The key operating elements of the Strategy will be:

- development and implementation of the concept of a full-fledged regulatory "sandbox" for rapid testing of innovative projects;
- increasing the level of financial awareness and involvement (inclusion) of the population and business;
- launching an academic base with a focus on open banking.

"Working on the Strategy, we have developed a sustainable model of the future Ukrainian Fintech ecosystem. It should be integrated into the global landscape, create institutional and investment conditions for the development of digital services, as well as stimulate demand for innovative financial products and promote the development of talents on the market", – said Director of the Strategy and Development Department of the National Bank of Ukraine Serhiy Karpenko.

He added that the financial market has undergone dramatic changes over the past decade. During this time, it has transformed from a traditional corporate banking business model to entire ecosystems of the banking and non-banking markets. Transformations are also dictated by new challenges that stimulate the active growth of digital operations and generate demand for digital products and services in the financial sector.

The result of the implementation of the Fintech Development Strategy in Ukraine until 2025 should be the creation of favorable conditions for the development of all niches in this market. In addition to the appropriate actions and

measures of regulators and market participants, this will be facilitated by the introduction of a regulatory "sandbox", which will reduce the time to market for innovative solutions and create a favorable environment for testing hypotheses.

For the coordinated work on implementation within the framework of the document, a list of measures, actions and executors, as well as indicators of achievement of strategic goals in each of the three strategic directions has been developed:

- developed cashless economy;
- high level of digital and financial literacy;
- Fintech ecosystem has become.

The implementation of the Strategy will also largely depend on the implementation of related digital projects that the National Bank is working on. In particular, we are talking about the introduction of remote identification and verification, the implementation of Eurodirective PSD2, the provision of the ability to make instant payments from account to account in EPS in a 24/7 format; strengthening the regulatory perimeter in the field of cybersecurity and all other innovative projects of the central bank.

Thus, the main indicators of the successful implementation of the Strategy are, in particular, identified:

- transition of most market players to open banking standards and tools for remote identification and verification;
- launch of a regulatory "sandbox" and growth in the number of innovative products tested in it, 16-20 per year;
- balanced development of all Fintech niches;

- spread of the use of innovative technologies in supervisory and regulatory processes;

- increase in digital and financial literacy of the population, as well as the level of training of professional personnel in the market (especially on the eve of the implementation of PSD2) and the development of gender talent based on the academic environment;

- entry of the National Bank of Ukraine into the global "sandbox" – the global financial innovation network (GFIN).

At the same time, the National Bank closely follows Fintech trends and the development of financial technologies in the world and in Ukraine. If necessary, the Central Bank, together with market participants, regularly update the Strategy in accordance with the requirements and challenges of the time.

Conclusions. The study and scientific analysis of the development of financial technologies in the context of the digitalization of the Ukrainian economy makes it possible to draw the following conclusions:

1. Clarified the definition of the essence of the category of "financial technology", which we consider as a synthesis of digital technologies and innovations in the financial sector, used for the provision, expansion and distribution of financial services by technology companies.

2. The domestic Fintech industry is in its infancy and is significantly inferior to Western countries due to a number of reasons: the unstable economic situation in the country, the volatility of the national currency; imperfection of state regulation; unfavorable investment climate in the country; insufficient and

uneven development of the necessary infrastructure; lack of specialists in the field of new financial and information technologies; low level of patent activity, almost complete absence of breakthrough IT technologies, including in the field of Fintech; underdevelopment of the venture investment system; concentration of technological competencies directly in the banking system; insufficiently high technological and financial literacy of the population.

3. For the effective and safe functioning and development of digital financial technologies, it is necessary to adhere to a competent and systematic approach on the part of the state on the legal regulation of the Fintech sphere; the

introduction of open banking through the approval of the norms of the European directive PSD2 in Ukraine; assistance in the process of cooperation between banks and Fintech companies by attracting Fintech companies to outsourcing; increasing the level of financial literacy of the population, based on the simplicity and availability of information provision; formation of competent human resources in the field of Fintech.

In today's realities, the implementation of the above measures will contribute to the prospective development of Fintech in Ukraine and the integration of financial technologies into the main spheres of society.

References

Global State of FinTech PWC . (2017) . Access mode:

<https://www.pwc.com/sg/en/publications/assets/fintech-startupbootcamp-state-of-fintech-2017.pdf> [in English]

Kharchenko, N. (2017). *Dynamics of internet usage in Ukraine*. Access mode:

<http://www.kiis.com.ua/?lang=eng&cat=reports&id=705&page=1> [in English]

Про схвалення Концепції розвитку цифрової економіки та суспільства України на 2018-2020 роки та затвердження плану заходів щодо її реалізації: Розпорядження КМУ від 17 січня 2018 р. № 67-р. Access mode: <http://zakon.rada.gov.ua/laws/show/67-2018-%D1%80>. (дата звернення: 25.06.2020). [in Ukrainian]

Schueffel, P. (2016). Taming the Beast: A Scientific Definition of FinTech. *Journal of Innovation Management*. 4 (4), pp. 32–34.

Morozko, N.I., & Didenko V.Yu. (2017). The main trends in the development of the financial technology industry: a monograph. Moscow: RUSSINS, 176 p. [in Ukrainian].

Filippov D.I. (2018). On the impact of financial technologies on the development of the financial market. *Russian entrepreneurship*, 5, pp. 1437-1464. [in Ukrainian].

Pochenchuk G.M. (2017). Financial technologies: development and regulation. *Economy and society*, 13, pp. 1193-1200 [in Ukrainian].

FinTech in Ukraine: report of the USAID Financial Sector Transformation Project and the UNIT. City Innovation Park. Access mode: http://data.unit.city/fintech/fgt34ko67mok/fintech_in_Ukraine_2018_ua.pdf (access date: 05.07.2020) [in Ukrainian].

- The Basel Committee on Banking Supervision, consultative document: Sound Practices: Implications of fintech developments for banks and bank supervisors. (2017). *Bank for International Settlements*. Access mode: <https://www.bis.org/bcbs/publ/d415.pdf>. (дата звернення: 10.07.2020).
- Global FinTech Adoption Index 2019. (2019). Access mode: <https://asd-team.com/blog/global-fintech-adoption-index-2019-report-highlights>
- Банки и финтех-компании: сила – в единстве. Access mode: <https://finclub.net/overview/banki-i-fintekhkompanii-sila-v-edinstve.html>
- Фінансова інклюзія, інновації та безготівкові операції в Україні – пріоритети. Стратегія розвитку Fin Tech 2025. Accessmode: <https://bank.gov.ua/ua/news/all/finansova-inklyuziya-innovatsiyi-ta-bezgotivkovi-operatsiyi-vukrayini-prioriteti-strategiyi-rozvitku-fintech-2025>