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ISSUES OF WIDE IMPLEMENTATION OF FINANCIAL TECHNOLOGIES IN THE GLOBAL FINANCIAL MARKET

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ABSTRACT
In the last century, financial technologies have been widely introduced to develop the market of banking products in the world. Their appearance changed not only the banking systems of countries, but also the architecture of the financial market. The article analyzes the scope of implementation and use of innovative banking technologies in different regions of the world.

Keywords: banking innovations, financial technologies, banking services market, remote banking services, digital banks.

Introduction

For decades, the financial sector has been experiencing a constant evolution of service due to digitization. This evolution is characterized by increased connectivity and increased speed of information processing, both in the client interface and back office processes. Recently, at the center of digitization, there has been a shift from improving traditional task solutions to introducing completely new business opportunities and models for financial services companies. Digital finance includes new forms of customer communication and interaction provided by many new financial products, financial businesses, financial software and financial technology companies, and innovative financial service providers.

From this point of view, studies have been initiated in the field of finance and information systems to analyze these changes and the impact of digital development on the financial sector. This article examines the implementation of new and innovative banking products by banking and non-banking companies and their resulting impact on countries and regions.

LITURATURE REVIEW

Although the definitions of innovative digital banking products are expressed by foreign economists in the economic literature in a certain formal difference (due to some translational inaccuracies), although they seem to be close to each other in terms of content, their final analysis will reveal the existence of certain differences, shortcomings and advantages. made it possible.

In this case, studying the concepts and terms related to innovative digital banking products requires clarifying the term "innovation" at first.

Sociologist E.M. Rogers further expands the definition and calls innovation "an idea accepted as new by a person."[1]

However, in our opinion, it is the definition of "innovation" given by the Austrian scientist Y. Schumpeter, the founder of "Innovation Theory", that fully reveals the essence of the definition:

[1] * Everett M. Rogers, Diffusion of Innovations (New York: The Free Press of Glencoe, 1962), p. 13.

"Innovation is a new combination of production factors stimulated by the spirit of entrepreneurship."[2]

In his opinion, innovative activity serves as a source of income in the economy. He noted that it was the innovative processes that caused the emergence of the dynamics of the economy with a wavy appearance[3].

S. M. Teiki and M. M. Carvallo gave their views as "a type of innovation that can create value together with additional innovations"[4].

Terry Bradford says, “Traditional banks, digital banks and neobanks essentially represent the same mission. But their service channels and tools are different from each other" [5].

G.Buchak, G.Matvos, T.Piskorski, A.Serular gave a comprehensive definition of this definition: "financial technologies make financing more transparent, convenient and economical for consumers. Moreover, it will revolutionize the financial landscape by challenging existing financial service providers such as banks, insurance and existing investment companies. In addition to technological advances, fintech is spreading because it has a different regulatory power than existing financial service providers, which allows fintech companies to operate more flexibly in the regulatory sandbox to create innovative products[6].

Definitions of the concept of "financial technologies" by a number of international organizations and state macro-regulators were also studied.

Table 1. Analysis of definitions of "financial technologies" by various international organizations [7]

No.	The organization	Characteristic content
1.	United Nations	"Financial technology covers everything from mobile payment platforms to high-frequency trading (HFT), crowdfunding and virtual currencies to blockchain"[8]
2.	Financial Stability Board	"Technological innovations in financial services that can lead to the emergence of new business models, applications, processes or products with a corresponding material impact on the provision of financial services"[9]

[2] Schumpeter Y. Theory of economic development. Capitalism, socialism, democracy. - M.: Eksmo, 2007. - 864 p.
[3] Schumpeter Y. Theory of economic development. Capitalism, socialism, democracy. - M.: Eksmo, 2007. - 864 p.
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[6] Buchak, G.; Matvos, G.; Piskorski, T.; Seru, A. Fintech, regulatory arbitrage, and the rise of shadow banks. J. Financ. Econ. 2018, 130, 453–483.
[7] The table was compiled by the author after studying the definitions of international financial organizations and financial regulators.
[8] Castilla-Rubio, J.C., Zadek, S., and Robins, N., 2016. FinTech and sustainable development: Assessing the implications. [online] Available at: http://unepinquiry. org/publication/fintech-and-sustainable-development-assessing-the-implications/ [Accessed August 28, 2017].
[9] Financial Stability Board, ‘FinTech and Market Structure in Financial Services: Market Developments and Potential Financial Stability Implications’, 2019.

No.	The organization	Characteristic content
3.	International Organization of Securities Commissions	"Financial technology tools: 1) (innovative) business model; 2) new technologies that can change the financial market»[10]
4.	Central Bank of Hungary	FinTech is characterized by the use of the category "innovative solution", "which means new (previously not available on the market) technologies, business models and (or) cheaper and "beneficial for customers" products (services)"[11].
5.	Central Bank of Kuwait	New technologies used in the financial market, their application is aimed at its improvement and development as a result of the use of advanced products, services and business models [12]
6.	UAE Central Bank	in the regulator's documents, financial technologies are used to designate:–"enabling technologies" (in the source - Enabling Technology) include: open interfaces; "cloud" calculations; biometrics; big data analytics; artificial intelligence; distributed ledger technologies; - "innovative activity": "providing technologically supported services in various forms and sectors of the financial market"[13]

Table 1 presents the definitions of the concept of "financial technologies" by various world financial organizations and macro-regulators of countries. They are also reminiscent of the definitions given by scientific researchers. For example, in the definition given by the Central Bank of the United Arab Emirates, it is defined as services created by using technologies in the creation of financial technologies. The same can be seen in the definition of the UN. But most definitions focus on the benefits of financial technology. In particular, they are given characteristics such as "innovative business model", "innovative solution", "useful products for customers".

RESEARCH METHODOLOGY

This study explores two methodological approaches: a systematic review of relevant scientific literature and analysis of data from some governments` Central Banks and, as well as Meltwater,

[10] IOSCO Research Report on Financial Technologies (Fintech). February 2017
[11] MNB Decree 47/2018 (XII.17.) on diverging rules of compliance with obligations under certain MNB Decrees (unofficial translation) [Электронный ресурс]. URL: https:// www.mnb.hu/letoltes/mnb-regulatory-sandbox-decree.pdf
[12] Central Bank of Kuwait: Regulatory Sandbox Framework Document. https://www.cbk.gov.kw/en/legislation-andregulation/regulatory-sandbox/general-framework
[13]Guidelines for Financial Institutions adopting Enabling Technologies Central Bank of the UAE Securities and Commodities Authority Dubai Financial Services Authority Financial Services Regulatory Authority

Forbes company, Deloitte. E&Y and Boston Consulting Group datas on the development of financial access and economic development.

The research methodology differs from others in that it combines international and national indicators of financial access and economic development. This allows comparing criteria from two different sources.

ANALYSIS AND RESULTS

Nowadays, digital banking products are becoming widely distributed services in the world. The reason is that the Internet, mobile communication and smartphones encourage people to use these services in real time, cheaper, better and faster than traditional financial services without leaving their homes.

According to the Meltwater company, as of 01.01.2022, 68% of the population of more than 8 billion people use mobile phones, 64.4% use the Internet, and 60% use social networks.[14].

With an average annual growth rate of approximately 11%, the financial technology industry is one of the fastest growing industries in the world [15].

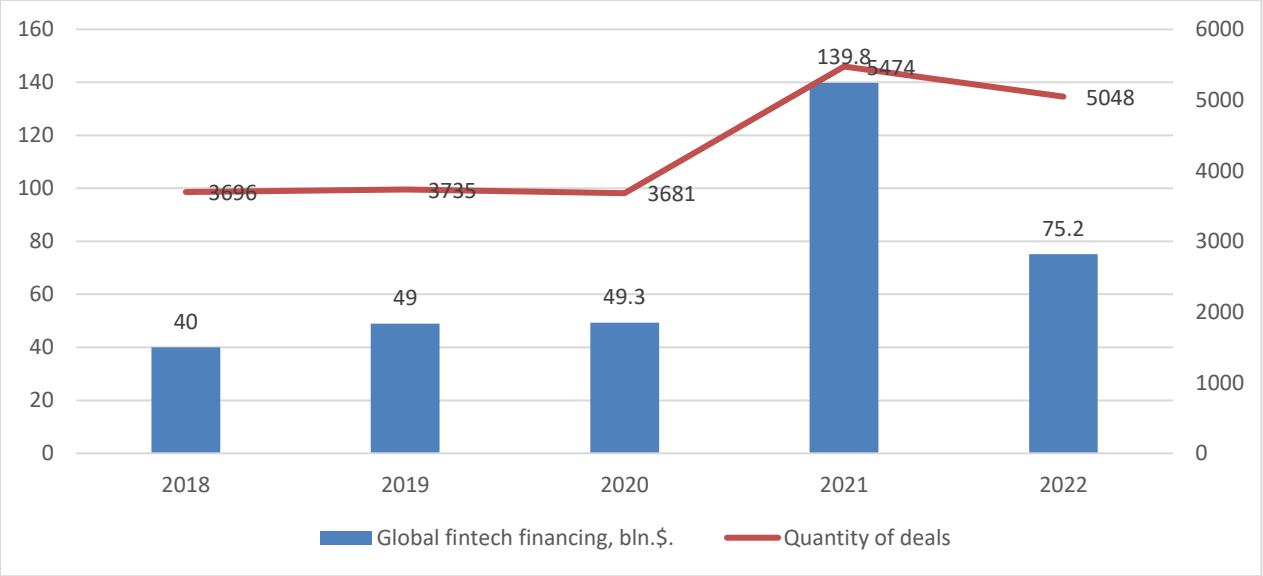

Figure 1. Global financing and number of deals during the period of 2018-2022 [16]

According to the data presented in Figure 1., the global financing of fintech in 2022 was 75.2 billion US dollars, which represents a decrease of 46% compared to 2021, but a 52% increase compared to 2020. The decline in funding was particularly severe in the second half of 2022, when funding in the fourth quarter of the year was $10.7 billion. This figure was the lowest quarterly level since 2018.

Financial technology companies headquartered in the US and China are the world's largest financial technology companies by market capitalization. The two largest payment companies in 2022 are Visa and Mastercard, headquartered in the US, with market capitalizations of

[14] Meltwater: Global overview. https://datareportal.com
[15] Deloitte Fintech| On the brink of further disruption https://www2.deloitte.com/content/dam/Deloitte/nl/Documents/financial-services/deloitte-nl-fsi-fintech-report-1.pdf
[16] Prepared by the author based on information from the official website https://www.statista.com/

approximately $465 billion and $345 billion, respectively. It is US dollars. China's Tencent ranked third with a market capitalization of US$187.92 billion.

To show the extent to which digital banks are developing, it is enough to analyze the main indicators of the 3 largest digital banks in the world. Figure 2. shows data on the 3 most common neobanks in the world, according to which the digital bank with the most users is China's Ant Bank with 1.3 billion. users are available.

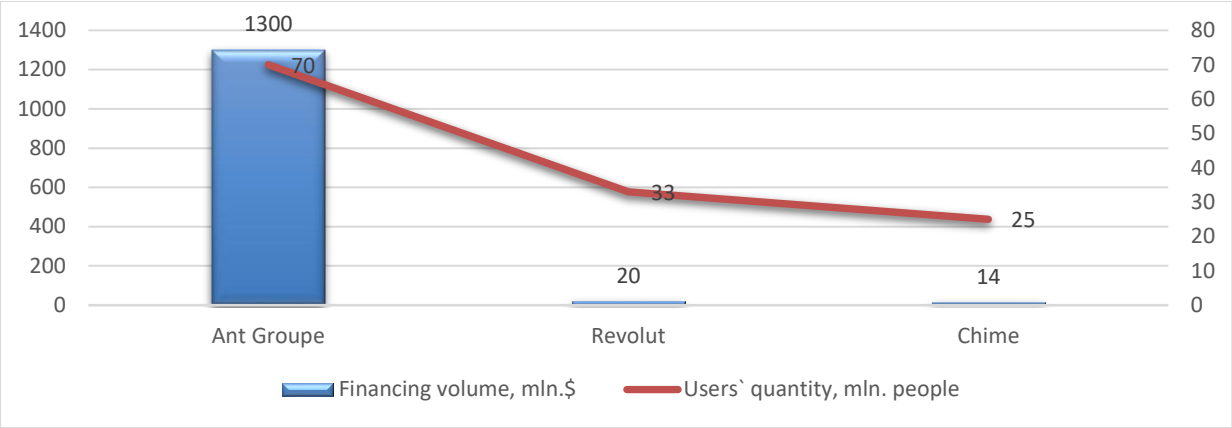

Figure 2. Information on the three most common digital banks in the world [17]

Also, in terms of financing, this bank is the bank that attracted the most funds, its volume is 70 mln. is US dollars. In 2nd place is UK neo-bank Revolut, which is significantly smaller than the Chinese bank, with only 1.5% of Ant users and almost 50% of funding. Chime neobank in the USA is in 3rd place.

The driving forces shaping the fintech space have worked in different ways in different regions over the past 20 years, leading to different levels of maturity, largely determined by differences in available funding sources, talent sources, local regulations, and technology adoption.

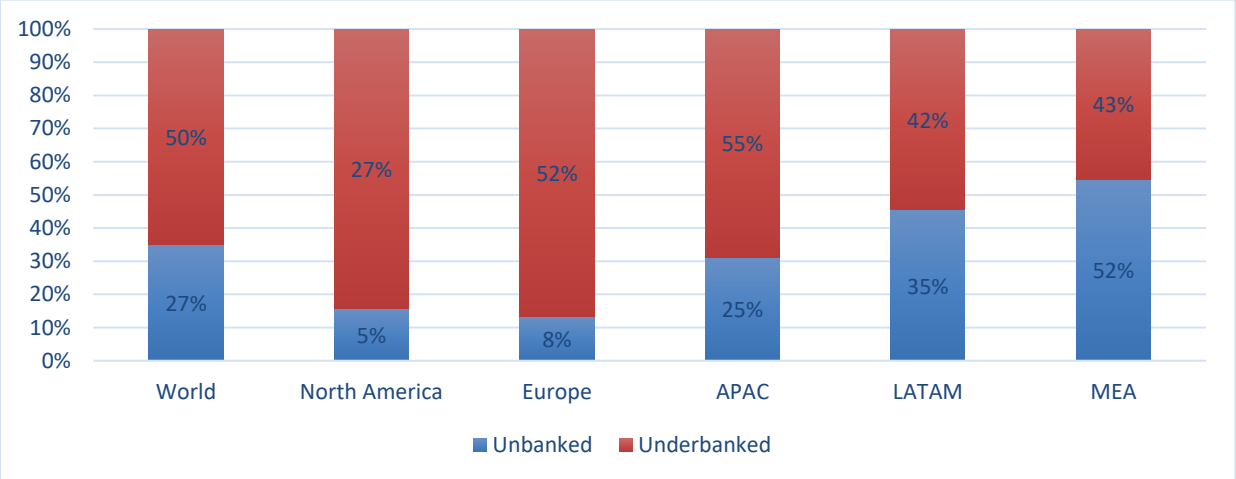

Figure 3. Comparative analysis of non-users of banking products and services of the world's population [18]

[17] https://topmobilebanks.com/blog/biggest-digital-banks-2021/

[18] Boston Consulting Group, Inc.Global Fintech 2023 Reimagining the Future of Finance https://web-assets.bcg.com

Historically underdeveloped, the Asia-Pacific has been developing very rapidly technologically in the last century. This can be proven by the data presented in Figure 3. According to this figure, the most financially active population is located in the European and North American regions, and the population that does not use banking services is only 8 and 5 percent.

27 and 32 percent of the population of the countries of the Asia-Pacific region and the regions of Latin America, respectively, do not use banking services. The high level of non-use of payment and credit cards limits the possibility of using banking services from a distance. It is surprising that the worst performance on this indicator is for the countries of the Asia-Pacific region and the population of the European region. The reason is that these countries are among the leading countries in terms of the level of economic development.

As such, each region is on a separate chapter in the overall financial technology journey, where different stakeholders seek to find creative solutions to problems in their areas or to localize and implement approaches that have proven effective elsewhere. Innovation typically occurs when a large firm in one region develops and implements a new innovation model, followed by copies in other regions, usually incorporating local variants.

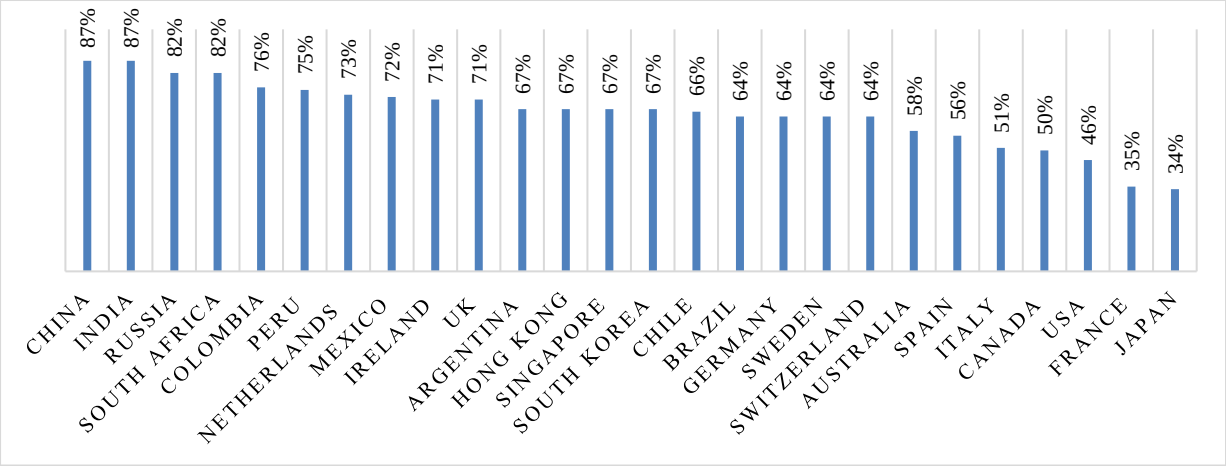

Figure 4. The level of use of financial technologies in the countries of the world [19]

Figure 4. shows the level of use of financial technologies in the world and its countries. According to its data, it is 64 percent worldwide. Taking into account that according to the data in Figure 3., it is shown that the level of global use of banking services is 76 percent, it shows that despite the fact that the use of financial technologies through the Internet and mobile phones has been popularized for a short time, financial technologies are rapidly entering the daily life of the people of the world.

With the emergence of local champions like PayTm and Razorpay, India is experiencing a fintech boom. Financial technology companies in the country have a clear opportunity to provide access to financial services to the 190 million unbanked Indian adults, especially where smartphones are ubiquitous and bank accounts are not. The regulator of India plays an active role in shaping the market with tools like UPI (Unified Payments Interface), Aadhar, Rupay and Digilocker in monitoring and regulating the financial market. Significant growth in fintech

[19] E&Y.:Global fintech adoption index https://www.ey.com/en_us/ey-global-fintech-adoption-index

revenues in India is expected to be fueled by factors such as GDP growth (7% p.a.), growing educated middle class, maturing youth and fintech penetration.

Today, the market of these financial instruments is dominated by the presence of neobanks with customers not only in the region, but also around the world, such as the current Revolut and N26. Regulators are a system led by new think-tanks who favor new types of financial services, such as open banking, open finance and passporting. This regional financial technology sector is expected to show an average annual revenue growth rate of 21% until 2030, which has been achieved due to the large number of so-called payments plus (ecosystems of additional services on top of traditional payment infrastructure), private finance and B2B consumers. In addition, open banking is expected to help create new products and services, which will help the sector grow further.

Latin America is one of the regions that is witnessing the rapid penetration of financial technology. Similarly, Latin American markets, led by Brazil and Mexico, which have shaped the financial technology landscape, are expected to show an average annual revenue growth rate of 29% during the same time frame. These countries are attracting the interest of institutional investors and one can witness an increasing number of advanced technologies in various fields. The acceleration of innovation growth and the return flow of foreign-trained and employed local experts are very effective in creating a local financial technology ecosystem. Government efforts to develop fast retail payments and digitization systems in the region are also one of the attractive conditions for its development.

Table 2.Analysis of data on users of banking services in selected African countries [20]

No.	The Country name	Population, million person	Bank services users, in %	Bank services users, million person	Share in the region **, %да	A widely used banking mobile application
1.	Morocco	36,9*	29	10,70	5,05	CIH (Crédit Immobilier et Hôtelier) Mobile
2.	Egypt	102	33	33,66	15,90	NBE (National Bank of Egypt) Mobile banking
3.	Nigeria	206	40	82,40	38,92	Kuda, Mobile banking
4.	Kenya	53,7	82	44,03	20,80	M-Pesa, Mobile banking owned by Vodafone
5.	South Africa	59,3	69	40,91	19,33	Capitec, Mobile banking
	Total	**457,9**		**211,71**	**46,24**	

**2020 year indicator*

*** within the countries cited*

The worst indicator corresponds to the countries of the Middle East and Africa. According to the data presented in Table 2., by the end of 2021, the level of access to banking services varies

[20] The table was compiled by the author based on the data of the Forbes company.

across African countries. For example, only 29 percent of the population in Morocco and 89 percent of the population in Kenya use banking services.

Africa and the Middle East can overtake existing companies by introducing new technologies. Although cash still plays a leading role in Africa, financial technology can be a tool to solve the problem of access, as a large part of the population is still underbanked or completely unbanked. As this is the world's youngest and fastest-growing region—with a median age of about 19 years and a population projected to grow by another 1.2 billion by 2050—demographic changes and rising incomes will naturally increase the need for financial capacity. In this, high growth dynamics are observed in technology, especially in terms of cashless payments. For example, today, according to the World Bank, 73 percent of adults in Nigeria own a smartphone, but only 2 percent have credit cards.

Accordingly, most Africans' first contact with the financial services industry is likely to be through their smartphones, opening up huge opportunities for regional fintech companies in payments and lending with aggressive full-featured fintech models. Historically, telecommunications and financial technology companies such as M-Pesa, developed by Vodophone subsidiary Safaricom, have contributed significantly to the growth of this segment in the region. Such companies are expected to retain their dominant role alongside public financial technology companies.

DISCUSSION

According to P. Homer, J. Koch and M. Siering, in terms of operational efficiency, financial technology innovations allow commercial banks to expand their service capabilities, meet the various needs of customers, and increase the opportunity for growth in the future, thereby increasing profitability[21]. This definition talks about the benefits of implementing financial technologies, but it does not take into account results such as the elimination of risks caused by the human factor, the reduction of operational costs, and the increase of profits.

They also believe that financial innovation has made it possible to reduce information asymmetry between banks and borrowers, thereby making banks safer and more flexible. In this definition, the author did not take into account that the state of the digital infrastructure for digital banks and financial services is not the same for all residents.

A. Faster, M. Ploser and others referred "from the point of view of risk control, financial technology can use advanced technologies such as biometrics and voice recognition to reduce labor, capital and time costs to increase data accuracy, which in turn reduces the risk of internal fraud and systematic can reduce the risk" [22]. In our opinion, the definition of these authors more fully reflects the benefits of the introduction of financial technologies than the definitions given above.

[21] Gomber P., Koch J. A., Siering M. Digital Finance and FinTech: current research and future research directions //Journal of Business Economics. – 2017. – T. 87. – C. 537-580.

[22] Fuster A. et al. The role of technology in mortgage lending //The Review of Financial Studies. – 2019. – T. 32. – №. 5. – C. 1854-1899.

CONCLUSION

Based on the analysis of trends in the transformation of international, regional and foreign banks and the introduction of new products, results with signs of scientific innovation were achieved: the trends in the introduction of neobanks were based, models and methodologies of their impact on economic development were developed, the laws and problems of the development of innovative products were determined.

The results of studying the development dynamics and trends of innovative banking products at the mego, macro and micro level showed that:

– the structure of the world economy and the architecture of banking markets are changing under the influence of high technologies and scientific research;

– under the influence of the unstable geopolitical and economic situation in the global economy in recent years, financing of financial technologies is slowing down, but the creators of financial technologies are focusing on income;

– the market of international banking products is one of the rapidly developing markets mainly under the influence of financial technologies and is not affected by any network, border or time barriers;

– regions with a low level of access to banking services have a high chance of developing financial technologies;

– the analysis of developing countries and countries with a high level of use of financial technologies shows that their impact leads to a minimal increase in bank profitability, a decrease in operational costs and risks.

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