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FINANCIAL TECHNOLOGIES AND IT TOOLS: BUSINESS MANAGEMENT IN CONDITIONS OF SOCIO-ECONOMIC TURBULENCE

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ФІНАНСОВІ ТЕХНОЛОГІЇ ТА IT -ІНСТРУМЕНТИ: УПРАВЛІННЯ БІЗНЕСОМ В УМОВАХ СОЦІАЛЬНО-ЕКОНОМІЧНОЇ ТУРБУЛЕНТНОСТІ

The article was prepared as part of the scientific study "Mechanism of leveling socio-economic rejection of the population of Ukraine in conditions of economic turbulence."

The section presents an analysis of available innovative business management tools based on financial technologies and IT solutions. Innovative management of the regional business in any region is impossible without clear indications of the strategy of innovative development of the country and its regions, which should be an organic component of the overall development strategy of the state. During the re-search, a SWOT analysis of the use and development of financial technologies in the regions with the use of IT tools was carried out. It was deter-mined that among the main FinTech solutions that can affect the innovative management of regional business are the recognition of digital currencies by central banks, decentralization and regionalization of financial platforms, and the spread of personalized financial services based on artificial intelligence. It was found that the main prerequisites for the development of embedded financial systems were the active processes of digitalization and integration of FinTech services after COVID-19, as well as the demand for smooth and fast lending processes and large government investments to improve the quality of digital lending. Potential opportunities for the spread of the embedded financial services market have been identified, including: re-tail trade and e-commerce, the real estate market, travel, media and entertainment, energy supply, etc. The authors proved that the joint efforts of FinTech companies and traditional banks create a positive synergy, changing the future of financial services, offering improved customer experience, simplified processes and innovative products not only at the national, but also at the regional and local level. It is predicted that the effectiveness of the innovative management of the regional business will be based on the partnership of classic financial organizations with an experienced digital provider, which will create advantages and prospects of opportunities, while at the same time leveling the associated risks.

У статті представлено аналіз наявних інноваційних інструментів управління бізнесом на основі фінансових технологій та IT-рішень. Інноваційне управління регіональним бізнесом у будь-якому регіоні неможливе без чіткого визначення стратегії інноваційного розвитку країни та її регіонів, яка має бути органічною складовою загальної стратегії розвитку держави. У ході дослідження було проведено SWOT-аналіз використання та розвитку фінансових технологій у регіонах із застосуванням IT-інструментів. Виходячи з наявності високого рівня невизначеності навколишнього середовища, наразі досить важко передбачити очікувані результати від існуючих пропозицій. Це означає, що необхідні нові методологічні підходи до інноваційного менеджменту в регіоні, у тому числі із застосуванням нових фінансових технологій із залученням IT-інструментів. Було визначено, що серед основних рішень FinTech, які можуть вплинути на інноваційне управління регіональним бізнесом, є визнання цифрових валют центральними банками, децентралізація та регіоналізація фінансових платформ, а також поширення персоналізованих фінансових послуг на основі штучного інтелекту. Виявлено, що основними передумовами для розвитку вбудованих фінансових систем були активні процеси цифровізації та інтеграції FinTech-сервісів після COVID-19, а також попит на плавні та швидкі процеси кредитування та великі державні інвестиції для підвищення якості цифрове кредитування. Визначено потенційні можливості для поширення ринку вбудованих фінансових послуг, зокрема: роздрібна торгівля та електронна комерція, ринок нерухомості, подорожі, медіа та розваги, енергопостачання тощо. Автором доведено, що спільними зусиллями FinTech -компанії та традиційні банки створюють позитивну синергію, змінюючи майбутнє фінансових послуг, пропонуючи покращений клієнтський досвід, спрощені процеси та інноваційні продукти не лише на національному, а й на регіональному та місцевому рівнях. Прогнозується, що ефективність інноваційного управління регіональним бізнесом базуватиметься на партнерстві класичних фінансових організацій із досвідченим цифровим провайдером, що створить переваги та перспективи можливостей, водночас нівелюючи супутні ризики.

Стаття підготовлена в рамках наукового дослідження "Механізм нівелювання соціально-економічної відторгненості населення України в умовах економічної турбулентності".

Key words: financial levers, management tools, innovative management, development, region, business, finances, technologies, IT tools.

Ключові слова: фінансові важелі, інструменти управління, інноваційний менеджмент, розвиток, регіон, бізнес, фінанси, технології, IT інструменти.

STATEMENT OF THE PROBLEM IN A GENERAL FORM AND ITS CONNECTION WITH IMPORTANT SCIENTIFIC OR PRACTICAL TASKS

Innovative management of the regional business in any region is impossible without clear indications of the strategy of innovative development of the country and its regions, which should be an organic component of the overall development strategy of the state. And in the conditions of military operations, it is the state that is responsible for the formation of general innovative strategies for the development of regions and the country as a whole. Only within the framework of the existing state strategy can the strategy of innovative management of the region, policy, priority areas of innovative activity, financial technologies and introduced IT tools to achieve strategic goals be determined. It has been proven that innovative management in the region should include five priority areas [1]: stimulation of existing business to use innovations, creation of small innovative enterprises; attraction of external investments; formation of an effective infrastructure to support innovation; increasing the level of innovative culture. If the first three priorities determine the target groups thanks to which innovative management will be carried out, then the fourth and fifth priorities are aimed at creating a foundation for the implementation of an innovative strategy for the development of the region.

Based on the conditions of the martial law and the high level of uncertainty of the surrounding environment, it is currently quite difficult to predict the expected results of the existing proposals. This means that new methodological approaches to innovative management in the region are needed, including the application of new financial technologies with the involvement of IT tools.

Modern business space cannot be imagined without information technologies (IT), which are of key importance in optimizing business processes. The range of IT tools used to manage regional business almost completely covers all the needs of the business environment: from the ability of business entities to implement large-scale strategies aimed at accelerating business processes and reducing operating costs to influencing the quality of products or services and increasing overall efficiency business entity. The introduction of IT technology into every aspect of business: from the automation of accounting operations and tax payment to the management of professional development and human capital is a finding of business mundanity.

At the same time, a special place in the IT system of business management tools is occupied by financial technologies (FinTech), especially taking into account the aspect of regionalism and local features of production chains. These technologies not only facilitate financial transactions, but also provide greater flexibility, innovation and competitiveness of regional businesses in a global context.

On a global scale, the financial services industry is highly profitable, generating about 12.5 thousand dollars. US annual income and approximately 2.3 thousand dollars. US net income per year with an average rate of return of 18% [2]. However, according to Deloitte, despite the profitability of the financial sector, customer satisfaction with financial services, including insurance, has traditionally ranked low compared to other industries [3]. But FinTech organizations have significantly higher customer loyalty rates than traditional organizations in this regard.

In addition, there is significant potential for growth in the FinTech sector, especially in emerging markets. According to a Boston Consulting Group study, 1.5 billion adults worldwide are unbanked and another 2.8 billion adults do not have bank accounts [4]. This is more than half of the world's adult population. In addition, a significant number of the population relies heavily on cash for large transactions, even though 89% of them use smartphones. This vast untapped market presents significant opportunities for fintech software development as innovative solutions can bridge the gap and provide affordable, mobile-friendly financial services to these populations.

Based on such trends, 2024 promises to be the year when FinTech organizations will establish strategic partnerships with traditional banks to revolutionize the industry. Driven by the innovative spirit and disruptive potential of FinTech for tradition-al banks, banks recognize the transformative power of this collaboration, which spans a range of initiatives from ready-made FinTech solutions to the joint development of cutting-edge technologies. FinTech provide flexibility, creativity and a deep understanding of customer needs, while banks provide access to their established infrastructure, regulatory expertise and vast customer base. This synergy represents a win-win situation, allowing both parties to change the future of the financial landscape by offering an enhanced customer experience, simplified processes and innovative products.

ANALYSIS OF RECENT RESEARCH AND PUBLICATIONS

Over the past decades, research into financial innovation has been quite active. The analysis of the scientific literature shows that the majority of scientists [5, 6] consider the development of science, engineering and technology to be the main factors in the emergence of innovations. Financial innovations include a wider range of specific factors, including regulation, liberalization of financial markets, formation of high volatility, informativeness, reduction of financial risks, the need to reduce transaction and operational costs, etc.

Also, financial innovations are considered as: 1) product or service innovation or significant improvement of their characteristics; 2) new or significant improvement of methods, equipment or skills; 3) significant improvement of the characteristics of existing financial products (services), methods, equipment or skills that were used earlier

Several main financial innovations are singled out, which at the same time characterize the reasons for their occurrence, i.e. we are talking about [5]:

innovations that ensure the effective functioning of "incomplete markets" by facilitating the free movement of financial resources and hedging risks;

overcoming the consequences of information asymmetry in the financial sector;

minimization of transaction costs, taxes and elimination of deficiencies in regulation;

strengthening of globalization processes and internationalization of financial markets, which makes it possible to use new methods of risk management;

diffusion of technological changes and information technologies that stimulate innovation. For example, they stimulate the emergence of new underwriting methods, the formation of securities portfolios, the emergence of new financial markets and means of safe execution of operations, risk management systems, online planning, etc.

FORMULATION OF THE GOALS OF THE ARTICLE (STATEMENT OF THE TASK)

The purpose of the study is to develop theoretical provisions and practical recommendations for improving the financial aspects of management and IT tools for business management in conditions of socio-economic turbulence.

PRESENTATION OF THE MAIN RESEARCH MATERIAL

Among the areas of FinTech solutions that can significantly affect the innovative management of regional business, the following can be distinguished:

1. Recognition of digital currencies by central banks. Central bank digital currencies (CBDCs) are gaining popularity and represent a sharp contrast to decentralized, untraceable cryptocurrencies such as Bitcoin. CBDCs are controlled by the government just like traditional currencies. Several countries around the world have al-ready implemented CBDCs, and the European Union, Canada, Brazil, and the United States are actively considering launching their own CBDCs. The National Bank of Ukraine indicated its intention to implement the electronic hryvnia as early as 2018 [7].

As of June 2023, 11 countries have implemented central bank digital currencies (CBDCs), another 53 countries are in advanced planning stages, and 46 are exploring the topic. According to the Atlantic Council [9] for 2021—2023, the transition between pilot projects and the implementation of CBDC is significant. Fig. 1 shows the regional display of CBDC implementation status as of December 2023. Ukraine is among the 21st countries

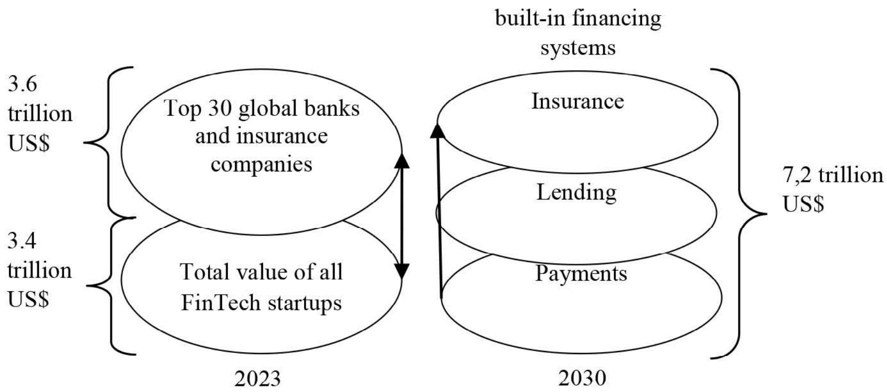

Figure 1. Projected cost of embedded financing systems

Developed by the authors based on [10].

where CBDC implementation is undergoing a pilot testing phase.

Based on this, FinTech can become a tool for the use of CBDC through the implementation of innovations in the following areas:

1) infrastructure and security: creation of secure digital wallets for storing CBDC; use of multi-factor authentication; validation for CBDC blockchains;

2) market data and analytics: access to real-time sources of CBDC market data; development of data analysis tools adapted to CBDC risk assessment;

3) compliance with regulatory requirements and transaction monitoring: ensuring compliance with KYC, AML rules; promoting transparency of requirements and obligations for CBDCs.

Therefore, for the banking sector, the key to its own development is the formation of alliances between classic banks and FinTech organizations, which will allow traditional institutions to implement digital transformation and remain relevant in the financial sector.

2. Decentralization and regionalization of financial platforms. The expansion of decentralized finance (DeFi) platforms enable direct access to financial services by eliminating traditional intermediaries. DeFi initiatives continue to improve, diversifying their offerings to include lending, borrowing and insurance services. As they evolve, they will attract a wider audience and disrupt conventional financial system. FinTech organizations have the potential to develop and implement DeFi through key ways of participation:

1) creation of DeFi infrastructure: development of convenient wallets and plat-forms: convenient interfaces for interacting with DeFi protocols will make them accessible to consumers; providing custodial and non-custodial solutions: fintech can offer custodial solutions (solutions in which a third party holds the private keys of user funds) for investors seeking to preserve their DeFi assets, as well as non-custodial solutions (only the owner owns and controls the private keys of the electronic wallet) for those who prefer more control;

2) introduction of DeFi-based financial services: DeFi-based lending and borrowing platforms that provide access to alternative sources of capital for individuals and legal entities; fintech can use DeFi to develop innovative payment and remittance solutions that are faster, cheaper and more accessible than traditional options; a DeFi-based wealth management service that allows users to invest in decentralized assets and protocols;

3) partnership with DeFi projects: cooperation with co-branded products and services; providing consulting and development services to DeFi projects in scaling and improving offerings; investing in promising DeFi startups: providing funding and supporting further innovation in the space.

That is, the involvement of FinTech organizations in DeFi will accelerate the growth and implementation of this innovative financial ecosystem with the spread of the regional scaling effect. Collaboration between FinTech organizations and DeFi projects has the potential to change the future of finance by creating a more open, inclusive and efficient financial system.

3. Spread of personalized financial services based on artificial intelligence (AI). Financial services are becoming highly personalized thanks to advances in artificial intelligence and data analytics. FinTech organizations use intelligent algorithms to analyze individual spending patterns, risk profiles and investment preferences. This capability allows them to provide personalized budgeting, saving and investing recommendations that meet each person's unique preferences.

Options for using AI in personalizing financial management include:

— personalized financial advice: AI-powered assistants analyze individual data and financial goals to provide personalized investment, savings and financial management recommendations. For example, Youchoose and Qubit use an e-commerce recommendation engine that tracks user behavior and suggests relevant products.

— data management: AI analyzes financial models, even with imperfect data, to form forecasts and optimize decision-making. This can be used to predict product preferences and adapt regional product supply strategies accordingly.

— digital assistants: Chatbots and AI-powered assistants provide personal financial advice 24/7, easing the burden on support teams and helping users track spending, achieve goals and control expenses.

— customer interaction: Natural Language Processing (NLP) enables chatbots to understand customer requests and provide accurate responses, simplifying interaction adaptation.

ClearSale and DataDome are examples of many such AI-based tools. This FinTech trend is especially important in today's increasingly complex cyber threat landscape.

The global COVID-19 pandemic has created sustained global and regional trends in the rapid growth of embedded finance, also known as embedded banking. However, now it is not only about banking services, but this FinTech trend implies that non-financial economic entities (for example, online shopping platforms, travel organization services, delivery services) add financial services directly inside their own platforms.

Future Market Insights predicts a cumulative average annual growth rate of 16.4% by 2032 [9], and Fintech Switzerland predicts the total market value of embedded financing to reach $7.2 trillion. (Fig. 1).

Given the trends, sectors such as retail, e-commerce, healthcare and education are predicted to see significant growth in the adoption of embedded financial solutions due to the need for convenient and affordable financial services. In addition, the diversification of embedded finance into sectors such as real estate, mobility, travel and energy highlights the expanding scale and versatility of embedded finance in addressing diverse financing needs across industries and regions.

McKinsey experts believe that the field of integrated financial services can grow by 40% annually [11], because such a tool is a successful solution in the struggle of traditional financial organizations with neo-banks. Classic banks have a significant customer base at their disposal, and if their service is similar to that of neo-banks, such customers do not need to switch to financial Internet companies.

A bright representative of the built-in financing system is BNPL (Buy-Now-Pay-Later) services. Appropriate tools transform a business from the status of just one of the bank's clients into a full-fledged partner with mutually beneficial cooperation conditions. For example, the concept of building such interaction based on the BaaS system. Under the BaaS system, the business entity gets access to a full-fledged financial infrastructure with BNPL, loans, insurance and other related services, for which it pays a payment commission. Basically, classic banks become a financial instrument of development for a non-financial platform.

A separate study by Mambu and Amazon Web Services, [12] notes that embedded lending (e.g. working capital for trading companies, consumer finance, etc.) could be worth US $3.4 billion by 2030, making it the largest market opportunity in the world

However, embedded insurance (eg, health insurance integrated into fitness apps, property and casualty (P&C) insurance integrated into e-commerce and business-to-business platforms) could be worth $1.8 trillion by 2030.

Based on this, the use of embedded financial services in every key sector of the national economy will lead to the fact that retail trade and e-commerce will become the largest segments of the market for FinTech services, which will account for 49% of the entire market by 2030. Health care, as a separate promising sector, also leads the way in the adoption of financial business management services with a potential sector of 17% [13].

CONCLUSIONS AND PROSPECTS OF FURTHER INVESTIGATIONS IN THIS DIRECTION. THE CONDUCTED RESEARCH SHOWS THAT

1. The management of the innovative development of the region was and remains an urgent problem of the development of the country's economy, therefore it is very important to have general approaches and methods of solving existing problems for business, especially in the conditions of martial law, the restoration of production, the need for its relocation and diversification in accordance with the requirements of wartime and postwar reconstruction of the economy of the country and its regions.

2. The management of financial technologies should be considered as the regulation of the introduction of certain innovations that exist in financial products (services), methods, equipment or skills not only within the framework of the development of banking services, the financial market, but also business financing, based on their needs and interests.

3. The effectiveness of the use of IT tools in the context of managing the innovative development of the region is determined by the level of the society informatization, financial support for scientific and technical works, business stimulation, activity of business entities in conducting R&D, favorable investment climate and other conditions during creation, use and implementation of scientific and technical developments, commercialization of intellectual property objects, preservation of intellectual capital of the region.

4. The IT industry and financial technologies are the main drivers of the development of all spheres of life and activities of the regional society, contribute to the rapid implementation of high-tech innovative solutions, and improve the quality of life of the population. Therefore, on the basis of such a synergistic effect, it is possible to offer various programs for the development of financial technologies with the use of IT tools in various areas of regional business, which are based on the combination of private business resources and communal resources for the implementation of projects with different goals and needs of the region.

So, despite the current fluctuations, it is predicted that by 2030 the annual income from FinTech will reach 1.5 trillion USD. The joint efforts of FinTech companies and traditional banks are creating positive synergies, changing the future of financial services by offering improved customer experiences, simplified processes and innovative products not only at the national, but also at the regional and local level.

Based on this, the global and regional trends of increasing the number of business entities integrating financial services into their offers are undeniable. The effective-ness of the innovative management of the regional business will be based on the partnership of classic financial organizations with an experienced digital provider, which will create advantages and prospects of opportunities, while at the same time leveling the associated risks.

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