

ФІНАНСИ, БАНКІВСЬКА СПРАВА ТА СТРАХУВАННЯ

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MODERN TECHNOLOGIES AND DIGITIZATION IN THE CONTEXT OF DEVELOPMENT OF INTERNATIONAL FINANCES

The article examines modern technologies and digitalization in the context of the spread of financial inclusion. The issue of glocalization processes in the field of financial market is identified. Modern information systems influencing inclusive processes in a renewed digital society have been studied. The advantages of Internet banking among users of banking services are determined. The active development of the fintech industry in modern conditions has been studied. The adaptation of foreign experience in cyber risk management in the context of ensuring financial inclusion is determined. The main purpose of the study is to describe modern technologies and digitalization in the context of international finance. Systematization of literature sources and approaches to solving the problem is that we conducted an analysis of domestic scholars who gave different approaches to interpreting the concept of modern technology and digitalization in the context of international financial relations. The urgency of solving this scientific problem is that the essence of the concept determines the prerequisites for practical measures for the application of modern financial innovations, including digital innovations, in the international financial market. The research of the topic of modern technologies and digitalization in the context of the development of international finance is carried out in the following logical sequence: the need for the introduction of digital technologies in finance is determined; the glocalizing influence of digitalization on the functioning of the world financial market is proved; the impact of financial inclusion on the banking and insurance markets is determined; the positive features of modern digital solutions in finance, in particular Internet banking, are considered; the issue of improving financial literacy among young people was raised; the issues of international finance through the prism of crypto industry development are considered; the importance of adaptation of foreign experience of cyber risk management is determined; emphasis is placed on the development of international financial relations in the context of hostilities in Ukraine. The last few years of research have been the methodological tools of research methods. The object of research is the processes related to the development of financial innovation and digitalization, because they will ensure the further development of international financial relations in the near future. The article presents the results of an empirical analysis of financial inclusion and access to innovative financial technologies. The study empirically confirms and theoretically proves that the development

of international finance is possible only in the context of overcoming non-inclusiveness through the development of modern financial innovations, including digital innovations. The results of the research can be useful for financiers-practitioners, for civil servants, for scientists dealing with financial innovation, for graduates in management and administration.

Keywords: *international finances, financial inclusion, digitalization, glocalization, Internet banking, Fintech-industry, cyber threats, banking sector, insurance sector.*

СУЧАСНІ ТЕХНОЛОГІЇ ТА ДІДЖИТАЛІЗАЦІЯ У КОНТЕКСТІ РОЗВИТКУ МІЖНАРОДНИХ ФІНАНСІВ

У статті досліджено сучасні технології та діджиталізацію у контексті поширення фінансової інклюзії. Визначено питання глокалізаційних процесів у сфері фінансового ринку. Досліджено сучасні інформаційні системи, що впливають на інклюзивні процеси, в оновленому діджиталізованому суспільстві. Визначено переваги Інтернет-банкінгу серед користувачів банківськими послугами. Досліджено активний розвиток фінтех-індустрії в сучасних умовах. Визначено адаптацію зарубіжного досвіду управління кіберризиками в контексті забезпечення фінансової інклюзії. Основною метою дослідження є опис сучасних технологій та діджиталізації у контексті розвитку міжнародних фінансів. Систематизація літературних джерел та підходів до вирішення проблеми полягає у тому, що нами проведений аналіз вітчизняних вчених, що давали різні підходи до тлумачення поняття сучасних технологій та діджиталізації в контексті міжнародних фінансових відносин. Актуальність вирішення даної наукової проблеми полягає в тому, що сутність поняття визначає передумови до проведення заходів практичного характеру щодо застосування сучасних фінансових інновацій, в тому числі цифрових інновацій, на міжнародному фінансовому ринку. Дослідження теми сучасних технологій та діджиталізації у контексті розвитку міжнародних фінансів у роботі здійснюється в такій логічній послідовності: визначено необхідність впровадження цифрових технологій у фінансах; доведено глокалізаційний вплив діджиталізації на функціонування світового фінансового ринку; визначено вплив фінансової інклюзії на банківський та страховий ринок; розглянуто позитивні особливості сучасних цифрових рішень у фінансах, зокрема інтернет-банкінгу; порушено питання вдосконалення фінансової грамотності серед молоді; розглянуто питання міжнародних фінансів через призму розвитку криптоіндустрії; визначено важливість адаптації зарубіжного досвіду управління кіберризиками; акцентовано увагу на розвитку міжнародних фінансових відносин у контексті військових дій в Україні. Методологічним інструментарієм методів дослідження були останні кілька років досліджень. Об'єктом дослідження є процеси, пов'язані з розвитком фінансових інновацій та діджиталізації, тому що саме вони забезпечать подальший розвиток міжнародних фінансових відносин у найближчому майбутньому. У статті представлені результати емпіричного аналізу фінансової інклюзії та доступності до інноваційних фінансових технологій. Дослідження емпірично підтверджує та теоретично доводить, що розвиток міжнародних фінансів можливий лише в контексті подолання неінклюзивності через розвиток сучасних фінансових інновацій, в тому числі цифрових інновацій. Результати дослідження можуть бути корисними для фінансистів-практиків, для державних службовців, для науковців, що займаються питаннями фінансових інновацій, для здобувачів вищої освіти в галузі управління та адміністрування.

Ключові слова: *міжнародні фінанси, фінансова інклюзія, діджиталізація, глокалізація, інтернет-банкінг, FinTech-індустрія, кіберризика, банківський сектор, страховий сектор.*

Setting up a problem in general and its connection with important scientific and practical tasks. Today, financiers around the world need to solve problems that can only be overcome with the help of international financial companies or organizations. The current state of global financial markets requires finding new solutions needed for the development of global digital finance. It can be said that the number of risks in the financial market has increased rapidly over the last year, which is directly related to the digitalization of the world economy. Persistent risks of volatile economic growth increase the need to improve the balance of payments in highly indebted countries and require a significant strengthening of the banking sector. Therefore, in the context of financial inclusion, the issues of modern technologies and digitalization should be explored. This is especially important in times of military turmoil and deteriorating economic growth and financial market downtime, as modern technology can change the distribution of financial flows faster and better.

Analysis of recent studies in which the solution to the problem is initiated. This topical issue was raised in the research of such scientists as Bozhenko V., Vermenych Ya.,

Demchyshak N., Luk'yanchuk R., Oryekhov M., Radchenko N., Roshchyna N., Khamidov O. and others. However, today it is worth conducting research in the context of defining modern technologies and digitalization in the context of the spread of financial inclusion. From this point of view, we can find new perspectives on this study.

The objectives of the article. The objectives of this scientific article are primarily to describe modern technologies and digitalization in the context of international finance.

Summary of the main research material with full substantiation of the scientific results obtained. We agree with the opinion of scientists Khamidov O., Mamanazarov A., Maksymova I., Slyusarenko K. and Kulishova V., that in general Ukrainian business has already been integrated into the processes of global "digital pursuit". Experts and company executives understand that without the use of digital technologies they will not be able to compete successfully in domestic and foreign markets. At the same time, the company is very pragmatic about the proposed technology and is in no hurry to invest in completely new areas of the digital financial market. In addition, there are some obstacles to the introduction and use of digital technologies in the financial sector. First, the lack of investment resources made it impossible to implement the project and ensure the viability of the IT system. Equally important are the issues of digital literacy and staffing of the "digital revolution": the lack of IT professionals and users who know how to use innovative technologies effectively, "innovative solutions" do not always interact with suppliers and consumers who are still struggling. Sometimes the restraining factor is underdeveloped infrastructure (low bandwidth, lack of access to mobile Internet, lack of data centers, etc.). Finally, a significant number of companies believe that they can count on some government support for the use of digital technologies (*Khamidov et al., 2021*).

As rightly noted Roshchyna N.V., Shevchuk O.A. and Kustar'ova K.M., rapid digitalization significantly affects the functioning and development of the global financial market (*Roshchyna, Shevchuk and Kustar'ova, 2021*). W. Rudomettoff and R. Robertson considered the authors who introduced the concept of "glocalization" in the terminological field of sociohumanities. They have convincingly proved that the current process of globalization causes diverse and multidirectional changes in regional forms of human life. On this basis, there is not only overcoming local cultural traditions, but also their revival, the extreme manifestation of which are the phenomena of fundamentalism. The dialectic of the complex interaction of the concepts of "globalization" and "localization", embedded in the hybrid term "glocalization", is essentially reduced to the inclusion of local communities and territories in an extensive network of world economy and relevant policies. In practice, this means that regional policy at the state level and the mobilization of resources at the regional level are an integral part of the system of international economic regulation, foreign economic and diplomatic relations. Therefore, the discourse of cross-border is impossible to imagine without the use of the term "glocalization" and its derivatives (*Vermenych, 2021*).

Issues of glocalization processes today have penetrated into a number of areas of the financial market. In particular, one of these areas is the insurance market. The financial inclusion of the insurance market must be measured by a number of indicators. In particular, one of such indicators is the level of insurance density. Another important indicator is the penetration of insurance. If we talk about the indicator of the penetration of insurance services, then it is possible to monitor the share of insurance to ensure sustainable development of the country. For example, the availability of insurance institutions in Ukraine during 2016-2020 tends to decrease due to the increase in the number of persons aged 15-70 per 1 insurance institution (the figure increased by 1.44 times during this period). In this case, it can be understood that any current improvements in the insurance market of Ukraine are insignificant, and at some points are below the norm in relation to national averages. This is the case for some insurance services, and for the distribution of financial indicators in geographical terms, and this is reflected in the international promotion of insurance services.

According to scientist Oryekhov M.O., two billion individuals and 200 million businesses in developing economies today do not have access to savings and loans, and even

those who have access can pay dearly for a limited range of goods. Rapidly spreading digital technologies now make it possible to provide financial services at much lower costs and, consequently, profitably, stimulating financial inclusion and ensuring a significant increase in productivity in the economy (Oryekhov, 2022).

As for the indicator of the density of insurance services, we can say that it can be used to measure the level of consumption of insurance services. Today, this figure is below the minimum, which indicates a low level of consumption of insurance services. In fact, it can be said that the financial inclusion of Ukrainian insurance services largely depends on how many different types of insurance are used and how popular they are. It should be understood that developed markets should best reflect the investment needs of insurance market participants (insurers), which is reflected in the trends in demand for many insurance services in Ukraine. Therefore, this will be affected not only by internal institutional changes, but also by external institutional changes that reflect the economic situation abroad.

As for the threats that affect the insurance market in economic terms, modern technological solutions and approaches – all this is directly reflected in the level of penetration of insurance services in Ukraine. If we talk about the implementation of insurance approaches, it is worth mentioning the basic principle of insurance. It is based on the creation of appropriate insurance funds through the accumulation of funds from the investments of policyholders. Today, this approach is experiencing a certain imbalance, and we have a certain inability of the market to implement those areas that are important today.

An important element of the policy of ensuring financial inclusion in insurance markets is the support of strategic insurance, ie insurance with long-term orientation. Mandatory state pensions can be one of such areas of financial inclusion. It is known that very few people today enjoy new pensions, and this is reflected in private pension funds. Thus, failure to use this approach in the system of financing pension systems will hinder the development of processes that may become commonplace and reach a large part of the population. Therefore, interest in various areas of pension insurance in Ukraine and its use in practice will lead to changes in legal norms and rules and increase financial security and confidence in various insurance companies engaged in private pension provision. And in this direction we can state changes in approaches to increasing the inclusion of insurance services in Ukraine.

Another area of financial inclusion that will ensure the penetration of financial services for the widest possible population is the use of tax payments, in particular the use of tax rebates. This tax possibility is typical for individuals and provides for a confirmed amount of the taxpayer's expenses during the reporting period, which is allowed to reduce the total annual taxable income. According to Art. 166-169 of the Tax Code of Ukraine, it can be argued that if we are talking about long-term life insurance, then such a discount is possible and should be applied. Indeed, under the insurance contract, the insured person may be the one who made these insurance premiums, he may receive the amount of such a discount. Therefore, in this case, we must understand that the use of such approaches today opens up new opportunities in terms of financial inclusion of insurance services.

Despite the development of financial services in the country and its progressive movement, we can confidently say that today there is a significant role of the state in strengthening the requirements for the activities of those companies engaged in financial activities and creating appropriate institutional approaches to supporting companies. Such issues create an inability of insurers to carry out their activities in some types of financial activities. And this, in turn, deters customers from possible involvement in the use of financial services.

Any services provided in the financial market will develop faster if there is excessive and moderate regulation of financial processes by the state: the elimination of excessive supervision, inspections and controls and other aspects of financial market regulation will be a step to the feeling of business working in this field, more freedom of action. Of course, this situation will inevitably affect the range of services, the rates of financial payments and, accordingly, financial payments, and thus the financial inclusion in this area among the

population. The main thing is that we understand that the main point that the state must pursue is to ensure the rule of law in accordance with the regulations and bylaws governing the sphere of financial activities. That is, if all goes well in this direction, and the financial company provides proper services, and the participant of financial activities will not commit any fraud, the financial market will be inclusive in any case.

Today, the state should create not regulatory and regulatory, but stimulating methods that will have a positive impact on the development of the insurance market, and will be based on deregulation and various control approaches by state supervisors. An important action is to eliminate any ineffective areas of regulation and implement a system of supervision based on monitoring of risk situations. Another approach to ensuring the development of insurance inclusion will be aimed at protecting the direct consumers of insurance services and their interests. Elaboration of free pricing, creation of favorable conditions for the introduction of modern liberal principles in the insurance market is a step towards the development of financial inclusion of insurance services. The development of the insurance market is possible in the context of the best European traditions and practices, and those approaches that have already proven themselves around the world and have existed for decades. The application of the best methods and approaches in the field of insurance is also an important step towards the introduction of as many insurance services as possible among the largest possible population in the country (*Vakhovych et al., 2021*).

In addition to following a general direction of financial activity, such as insurance, the inclusion of banking services is still more common today. As with insurance services, the availability of banking services will be mainly focused on information technology. Too many players in the financial system may not be fully involved in such services. This indicates geographical restrictions on access to services, or the inability to use modern information technology, or the acquisition of skills or knowledge to prefer traditional banking services to Internet services. Therefore, training as many people as possible in Internet technology and computer literacy, as well as the use of modern financial literacy, aimed primarily at the widest possible age range, will help increase financial inclusion in banking almost every day.

We understand that such technology as Internet banking is a relatively new phenomenon, but is developing very rapidly in Ukraine and over the past 5 years has become widespread among users of banking services. That is, every potential employee of banking institutions remains at risk of reduction as the level of provision of banking services on the Internet develops. After all, everyone who uses the bank via the Internet, in fact, takes a job from a bank employee and performs its functions. Therefore, we must understand that Internet banking and the use of modern e-offices, connecting to them the vast majority of all services provided by the bank, the use of automated call centers and chatbots – all this contributes to the fact that a number of bank employees in the near future may be reduced and the number of banks and their branches reduced. That is, the bank will gradually move into the environment in which individual banks already exist, is in the virtual plane.

Now we can say that the benefits of online banking are obvious, 24 hours a year, 7 days a week, can be used in any field, there is only one condition - Internet service. A large number of people who use online banking and the availability of this technology, even those who have only a card or account in the relevant banking institution, have the opportunity to create a personal electronic account of the user of the banking service. In fact, in this case, the question arises about the security of banking services over the Internet, the compliance of functions and tasks that banks must provide when we want to quickly and safely obtain available services. It is also important that the support service does not understand the use of such services: encouraging customers to solve problems or explaining how quickly banking services are used. Therefore, the modern understanding of Internet banking is changing, because it is not enough to understand how to use banking services, but also how much we as customers can independently attract the functionality of the bank and are able to help solve technical and financial problems.

The special spread of Internet banking is due to the distribution of a variety of applications and applications. These programs are created by modern IT companies directly with the direct participation of banking institutions and are their official applications of banks. Such developments guarantee the successful management of personal and corporate finances, including deposit and credit services, settlement and cash services, payment of payments, personal and pension insurance, purchase of goods and financial assets, etc.

The development of mobile banking is made possible by the merger between the smartphone as a telecommunications device, the latest software using modern technical solutions, and acquisitions (including FaceID and TouchID) that use human biometrics, as well as remote banking services such as deposit, credit, insurance services and pension accounts, purchase of bank metals, etc.

The increase in the number of modern banks (neobanks) that use banking technologies through the Internet is a good indicator of the financial system, but it should be noted that today the growth of threats and competition comes from the use of modern technologies, including modern mobile applications and payment elements. In this case, such companies may undermine the role of traditional banking institutions and payment cards, as they provide a fairly reliable service, but the element of information security is very strong. In particular, we are talking about companies such as Amazon, Facebook, Starbucks, and the use of existing payment systems popular around the world (Samsung Pay, PayPal, etc.). The development of these technologies has improved communication with customers, making this communication process cheaper, more convenient and more efficient. Thus, the spread of banking services today is an inclusion of technological banking services. After all, today banks are becoming not just institutions that provide financial services, they are becoming in some cases IT companies due to the widespread introduction of technological solutions in everyday life. In the near future, proximity to the information technology sector will determine the extent to which the bank will be able to survive such incarnations over time and ensure the involvement of as many customers in its services on the most favorable terms for the latter.

The active development of the Fintech industry is due to the rapid spread of e-commerce, increasing the number of users of mobile devices, widespread use of payment services and other remote services. Online transactions, mobile payments, contactless payment are gradually changing the payment habits of the population and domestic enterprises. This process will gain momentum in the coming years and will spread to all spheres and aspects of life and business.

Among the most common Fintech solutions used, especially by small businesses, are the following: 1. Online onboarding, account opening and online transactions are made possible by the Privat24 web business interface from PJSC CB Privatbank. JSC "UkrSibbank" has completely switched to its own updated Internet banking UksibBusiness, which allows you to manage your accounts completely online. RBA from Raiffeisen Bank Aval JSC is actively implementing and developing remote verification procedures as part of a new process of digital onboarding of clients. 2. "Electronic document management", "Electronic reporting", "Regular payments" from PJSC CB "Privatbank" are widely used for reporting and payment of taxes online. With the Raiffeisen Business chatbot, you can file tax returns and receive reminders when you need to submit your next report. On the Portmone.com platform you can pay almost all possible payments, including taxes and fees. 3. A convenient solution for conducting trade activities is to set up trade, Internet and mobile acquiring. POS-terminals and mPOS-terminals are used for trade and mobile acquiring. Online acquiring can be used by users of virtual bank cards or e-wallets. It should be noted that the market of commercial and mobile acquiring is occupied by banks, and Internet acquiring is developed by providers – LigPay, Portmone.com, UAPAY, Interkassa, MOSST, Fondy and others. 4. Online lending is the most risky type of service for banks, as the decision-making process is complicated by the lack of sufficient information to assess the borrower and measure potential credit risk. But the first fintech solutions have already appeared, which will allow small businesses and individuals to receive loans online (*Radchenko, 2021*).

The main drivers of technologicalization and digitalization of financial processes are: the powerful development of electronic computers, mobile devices has increased the speed of data processing and gain constant access to financial services. Thus, in 2019 there were about 5.2 billion mobile users in the world, covering 67% of the world's population, while in 2015 – 4.66 billion, in 2010 – 3.219 billion people; increase investment in the development of fintech innovations. During 2018-2020, the average annual volume of global investment in the fintech sector was 140 billion US dollars, for comparison in 2017 - 59.2 billion US dollars, and in 2012 – 4 billion US dollars; the growth of e-commerce, which requires the implementation of non-cash payments for trade transactions; introduction of customer-oriented service and improvement of financial inclusion of the population; increasing the number of social network users who accumulate a significant amount of personal information, which is then used to assess consumer preferences, as well as serve as an effective channel for promoting innovative financial products. According to Emerketer, the penetration rate of social networks in the world in 2020 was 41.9% of the total population or 3.23 billion users. For comparison: in 2017 – 2.3 billion users or 31.2%, in 2013 – 1.6 billion users or 22.8%; liberal and stimulating policy of financial regulators in different countries in the development of innovative financial technologies by establishing communication between financial companies and regulators, improving payment infrastructure, establishing preferential tax treatment, legalization of cryptocurrency settlements, etc. (*Bozhenko ta Pihul', 2021*).

Back in 2019, the National Bank of Ukraine published its vision of the extent to which the strategy and vision of both financial literacy and financial inclusion can be applied to Ukraine (*Financial Inclusions for economic growth, 2019*). First of all, we are talking about the use of five main strategic visions. In particular, we are talking about changing the financial culture, new knowledge, acquiring new skills and, accordingly, bringing all approaches to ensuring responsible behavior on the part of financial users and gaining much greater financial inclusion. It is also about forming Ukrainians financially aware of European thinking. This means gaining new approaches to the worldview of a citizen of Ukraine who will still share European values and be ready to fully transform his life to European standards: he will plan to shape its budget based on its own forecasting of income and expenditure in the context of financial decisions. which are inherent in his daily activities. He will also plan to spend his savings on investment. And this will have a positive impact on the development of both the financial system and the individual household.

Based on the analysis of financial inclusion indicators, the following theses can be argued. Back in 2014, the number of banking institutions was 147, and in 2018 the number was almost twice less, is 77 banks. As of the beginning of May 2022, the number of banks in Ukraine was 69. In 2014, there were more than 15,000 structural divisions of banks, and today there are twice as many. Also, the final number of units is currently declining, as hostilities continue in many areas, which has a negative impact on the financial infrastructure. In 2014, there were almost 33 million active payment cards. At the same time, this figure has grown in recent years and now stands at almost 37 million units. The total number of ATMs in 2014 was over 36,000. There were periods when this figure decreased. As for the payment terminals of banks, they are much more than ATMs: in 2014 there were 203 thousand units, in 2018 the figure approached the level of 300 thousand units, and continues to grow. We also understand that net loans relative to gross domestic product in 2014 amounted to 9.1%, and in recent years this figure has decreased three times. Individuals' funds relative to gross domestic product in 2014 amounted to 25.4%, while in 2018 this figure decreased by almost half. To date, this figure has also decreased significantly. The ratio of cash to GDP in 2014 was 17.8%, and three years ago - 9.8%. In other words, we see that both in loans and in cash, the financial resources circulating in the banking sector are significantly reduced, they become less accessible, including due to the reduction of banking institutions due to various circumstances. Consequently, we can say that a significant part of the banking sector is moving to cyberspace, and part of the population using traditional banking services is deprived of access to a wide range of banking instruments.

The last factor was manifested in the hostilities of February 2022. Thus, the burden on banks that use traditional banking services will only increase in the near future.

Today, the active use of banking products and services is largely characteristic of young people and highly educated youth. This indicates that a significant part of the population remains disconnected from banking services. It should be noted that almost all participants who have access to the banking system, have payment cards and use banking services, actively use banking services. Please note that debit cards (over 60%) are common among payment cards, those that allow you to receive checks or pensions, and credit cards. However, only 50% of customers use bank loans because there are other solutions that allow them to take advantage of modern credit markets and obtain adequate financing, and they are not active participants in a particular banking institution, having only a passport and taxpayer identification code. A significant part of users of such services sell or buy currency in banks, and a significant part of citizens use mortgage, car and consumer loans. Of course, compared to foreign lending experience, domestic lending is much lower, because the conditions and security of loans in Ukraine today are not yet available to the vast majority of citizens.

Considering the issues of international finance, it is worth noting the development of the crypto industry today. The global cryptocurrency market is developing positively and dynamically, with a total market capitalization of almost \$ 2.3 trillion. If previously cryptocurrencies were not covered by any legal field in the world, for several years now they have been actively introduced into the economies of different countries, legalizing digital currencies at the national level. In modern conditions, the crypto industry is developing rapidly, attracting new resources and opportunities. Today, more than 300 decentralized exchanges trade cryptocurrencies. Most of the transactions carried out on exchanges are mainly carried out in bitcoins. In today's world, there are many cryptocurrencies that are not regulated by governments or central banks. However, cryptocurrency trading is officially allowed in many countries around the world. They usually view cryptocurrencies as commodities or investment assets, mostly digital currencies.

According to the scientist Luk'yanchuk R.V., the current global trend that is gaining momentum is the development and implementation of regulatory framework for the regulation of the crypto industry. The global trend is the legalization of cryptocurrencies and thus the stimulation of the digital economy. The first country to recognize bitcoin as the official means of payment in 2021 was the Latin American country of El Salvador. According to foreign experience, the ongoing process of improving the principles of cryptocurrency implementation in the jurisdictions of different countries (Brazil, Switzerland) is underway. At the legislative level, each state approves its own model approach to cryptocurrency circulation. At the same time, specific legislation will remain for each individual country with a further tendency to synchronize the requirements of financial monitoring and identification of clients. The legal regime of service providers with virtual assets is expanding towards strengthening control over transparency and accountability of operations, cybersecurity and mandatory user verification (*Luk'yanchuk, 2022*). Therefore, today it is extremely important to look for new digital tools in the field of international finance that will effectively develop the financial system.

It is important to adapt foreign experience in cyber risk management. There are basic directions for preventing cyberattacks on front offices, which can be useful for Ukrainian financial institutions and companies: 1. Systematic risk assessment of online transactions for compliance with the sensitivity of information change (customer type, transaction volume, quality of service, mobile vehicle, etc.). 2. Improving information authentication standards. Abandon common two-tier last-name password identification methods in favor of advanced behavior-based fraud detection systems that can automatically detect transactions or website navigation anomalies in real time. 3. Apply a multi-level approach to data verification: layering different, complementary security technologies, such as strict authentication, behavioral fraud detection outside the transaction verification area, mobile authentication, advanced authentication, SSL digital certificates. 4. Introduction of advanced authentication methods: transaction-based mobile authentication, dynamic device authentication – including one-time

session cookies and digital fingerprints, etc. 5. Raising awareness and education of customers. Banks should spend part of their money on developing affordable educational projects for their clients. This has, according to Demchyshak N.B. and Shkyrya A.S., double consequences: increasing the level of security and establishing long-term partnerships with clients. These approaches can also be used to protect strategically important information for the work of the bank and non-bank financial institutions (*Demchyshak, Shkyrya, 2021*).

It is worth emphasizing that since February 2022, aggression by the Russian Federation has been applied against Ukraine and continues to this day. The hostilities, the numerous casualties, the destruction of industrial and residential infrastructure have led to population migration, loss of economic stability in the country and disruption of existing business ties. This will still have a lasting negative impact on the development of not only Ukraine's financial system, but also the world economy, as well as international finance. We already need to work on working out mechanisms and creating new effective tools that will be able to have a positive impact on the development of the securities market, the financial services market, and stabilize the foreign exchange market in the near future. That is why the introduction of modern financial innovations will provide solutions to difficult financial situations in the market and provide some stabilization of economic processes in the medium term. Of course, for the full functioning of financial relations, including at the international level, it is important to overcome the crisis in the economy, including inflation, improve trade relations between European countries and Ukraine, and develop common tools to overcome the energy crisis.

Conclusions, discussion and recommendations. Based on the study, we can say the following: the availability of financial institutions in Ukraine in recent years has tended to decrease, resulting from an increase in the number of people aged 15-70 per 1 insurance institution. The military actions that were initiated as a result of the aggression against Ukraine in February 2022 will have a particularly negative impact on this process. In general, it should be said that compliance with such areas of tracking financial services as penetration, as well as ensuring the appropriate level of density of participants in financial services, ensures the inclusion of financial services. In addition, then we can say that the appropriate level of financial security of the state and its regions.

Today we can say that mobile banking will constantly expand mobile and Internet traffic, increase the volume of financial transactions and indicate how independent we can be of any external and internal factors, being a customer of a particular bank and having access to the Internet. The use of Internet traffic will depend on the technical capabilities of mobile operators or telecommunications service providers. In addition, we must understand that modern gadgets must also be at the proper level. That is, technological developments that are implemented in modern smartphones or tablets are a step towards how financially inclusive we can be.

It is especially important today to develop high-tech financial innovations that can be developed, including in Ukraine, and will effectively influence the recovery of the financial system, as well as contribute to the development of international financial relations.

Author's contributions.

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Список бібліографічного опису:

1. Боженко В.В., Пігуль Є.І. Вплив цифровізації на розвиток фінансових технологій. Вісник Хмельницького національного університету. 2021. № 2. С. 11-15. <https://doi.org/10.31891/2307-5740-2021-292-2-2>

2. Верменич Я. Глобалізація vs локалізація: діалектика взаємодії у сучасному світі. Міжнародні зв'язки України: наукові пошуки і знахідки. 2021. Випуск 30. С. 207-224. <https://doi.org/10.15407/mzu2021.30.207>
3. Демчишак Н.Б., Шкиря А.С. Управління ризиками у фінансовому секторі України в умовах кіберзагроз і постпандемічного відновлення економіки. Інноваційна економіка. 2021. № 3-4. С. 19-27. <https://doi.org/10.37332/2309-1533.2021.3-4.3>
4. Лук'янчук Р.В. Сучасні виклики, пов'язані із розвитком криптоіндустрії. Інформація і право. 2022. № 1 (40). С. 72-81. [https://doi.org/10.37750/2616-6798.2022.1\(40\).254344](https://doi.org/10.37750/2616-6798.2022.1(40).254344)
5. Орехов М.О. Управління моделями фінансової інклюзії у контексті розвитку глобальної діджиталізації. Економіка і організація управління. 2022. № 1 (45). С. 127-139. <https://doi.org/10.31558/2307-2318.2022.1.13>
6. Радченко Н.Г. Перспективи розвитку FinTech для населення та бізнесу. Економічні студії. 2021. № 1 (31). С. 122-126. <https://doi.org/10.32983/2222-0712-2020-2-356-364>
7. Рощина Н.В., Шевчук О.А., Кустарьова К.М. Дослідження міжнародного фінансового ринку в умовах діджиталізації: нові можливості. Економічний вісник НТУУ «Київський політехнічний інститут». 2021. № 18. С. 44-50. <https://doi.org/10.20535/2307-5651.18.2021.231459>
8. Фінансова інклюзія задля економічного зростання: підсумки міжнародного «Форуму з фінансової інклюзії. Нікого за бортом». Офіційний сайт Національного банку України. <https://bank.gov.ua/ua/news/all/finansova-inklyuziya-zadlya-ekonomichnogo-zrostannya-pidsumki-mijnarodnogo-forumu-z-finansovoyi-inklyuziyi-nikogo-za-bortom>
9. Функціональні аспекти фінансового менеджменту як інструменту управління економічними системами : Монографія / Вахович І.М., Дорош В.Ю., Диль Х.М., Забедюк М.С., Ішук Л.І., Кондіус І.С., Коробчук Т.І., Кузьмак О.М., Мостовенко Н.А., Недопад Г.В., Ніколаєва А.М., Олександренко І.В., Пиріг С.О., Поліщук В.Г., Чиж Н.М., Шейко Ю.О., за ред. д.е.н., проф. Вахович І.М. Луцьк: Відділ іміджу та промоції Луцького НТУ, 2021. 212 с.
10. Хамідов О., Маманазаров А., Максимова І., Слюсаренко К., Кулішов В. Парадигма діджиталізації фінансового ринку України. Журнал європейської економіки. 2021. Том 20, № 4. С. 680-696.

References

- 1.Bozhenko V.V., Pihul' Ye.I. (2021). Vplyv tsyfrovizatsiyi na rozvytok finansovykh tekhnolohiy [Influence of digitalization on the development of financial technologies]. Visnyk Khmel'nyts'koho natsional'noho universytetu – Bulletin of Khmelnytsky National University, №2, 11-15 [in Ukrainian]. <https://doi.org/10.31891/2307-5740-2021-292-2-2>
- 2.Vermych Ya. (2021). Hlobalizatsiya vs lokalizatsiya: dialektyka vzayemodiyi u suchasnomu sviti [Globalization vs localization: the dialectic of interaction in the modern world]. Mizhnarodni zv'yazky Ukrayiny: naukovy poshuky i znakhidky – International relations of Ukraine: scientific research and discoveries, issue 30, 207-224 [in Ukrainian]. <https://doi.org/10.15407/mzu2021.30.207>
- 3.Demchysyak N.B., Shkyrya A.S. (2021). Upravlinnya ryzkamy u finansovomu sektori Ukrayiny v umovakh kiberzahroz i postpandemichnoho vidnovlennya ekonomiky [Risk Management in the financial sector of Ukraine in the conditions of cyberspionage and postpandemic recovery of the economy]. Innovatsiyana ekonomika – Innovative economy, №3-4, 19-27 [in Ukrainian]. <https://doi.org/10.37332/2309-1533.2021.3-4.3>
- 4.Luk'yanchuk R.V. (2022). Suchasni vyklyky, pov'yazani iz rozvytkom kryptoindustriyi [Current challenges related to the development of the crypto industry]. Informatsiya i parvo – Information and law, № 1 (40), 72-81 [in Ukrainian]. [https://doi.org/10.37750/2616-6798.2022.1\(40\).254344](https://doi.org/10.37750/2616-6798.2022.1(40).254344)
- 5.Oryekhov M.O. (2022). Upravlinnya modelyamy finansovoyi inklyuziyi u konteksti rozvytku hlobal'noyi didzhytalizatsiyi [Management of financial inclusion models in the context of global digitalization development]. Ekonomika i orhanizatsiya upravlinnya – Economics and organization of management, № 1 (45), 127-139 [in Ukrainian]. <https://doi.org/10.31558/2307-2318.2022.1.13>
- 6.Radchenko N.H. (2021). Perspektyvy rozvytku FinTech dlya naseleння ta biznesu [Prospects for Fintech development for the population and business]. Ekonomichni studiyi – Economic studios, №1 (31), 122-126 [in Ukrainian]. <https://doi.org/10.32983/2222-0712-2020-2-356-364>
- 7.Roshchyna N.V., Shevchuk O.A., Kustar'ova K.M. (2021). Doslidzhennya mizhnarodnoho finansovoho rynku v umovakh didzhytalizatsiyi: novi mozhlyvosti [Investigation of the international financial market in the conditions of digitalization: new opportunities]. Ekonomichnyy visnyk NTUU «Kyivskiyu politekhnichnyy instytut» – Economic Bulletin of NTUU «Kyiv Polytechnic Institute», №18, 44-50 [in Ukrainian]. <https://doi.org/10.20535/2307-5651.18.2021.231459>
- 8.Finansova inklyuziya zadlya ekonomichnoho zrostannya: pidsumky mizhnarodnoho «Forumu z finansovoyi inklyuziyi. Nikoho za bortom» [Financial Inclusions for economic growth: the results of the International «Financial Inclusion Forum. Nobody by side»]. Ofitsiyyny sayt Natsional'noho banku Ukrayiny – Official site of the National Bank of Ukraine. <https://bank.gov.ua/ua/news/all/finansova-inklyuziya-zadlya-ekonomichnogo-zrostannya-pidsumki-mijnarodnogo-forumu-z-finansovoyi-inklyuziyi-nikogo-za-bortom> [in Ukrainian].
- 9.Funktsional'ni aspekty finansovoho menedzhmentu yak instrumentu upravlinnya ekonomichnyimi systemamy [Functional aspects of financial management as an instrument of management of economic systems] : monohrafiya – monograph / Vakhovych I.M., Dorosh V.Yu., Dyl' Kh.M., Zabedyuk M.S., Ishchuk L.I., Kondius I.S., Korobchuk T.I., Kuz'mak O.M., Mostovenko N.A., Nedopad H.V., Nikolayeva A.M., Oleksandrenko I.V., Pyrih S.O., Polishchuk V.H., Chyzh N.M., Sheyko Yu.O., edited by Doctor of Economics, Prof. Vakhovych I.M. Lutsk: Department of Image and Promotion of Lutsk NTU, 2021. 212 p. [in Ukrainian].
10. Khamidov O., Mamanazarov A., Maksymova I., Slyusarenko K., Kulishov V. (2021). Paradyhma didzhytalizatsiyi finansovoho rynku Ukrayiny [Paradigm of digitalization of the financial market of Ukraine]. Zhurnal yevropeys'koyi ekonomiky – Journal of European Economy, volume 20, № 4. 680-696 [in Ukrainian].

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