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INNOVATION MANAGEMENT AS BASIS OF DIGITALIZATION TRENDS AND SECURITY OF FINANCIAL SECTOR

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Abstract. Digital innovations significantly affect the security of the financial sector of Ukraine, Latvia, and the world, and transform financial services. Financial innovations such as mobile money, peer-to-peer or market-based lending, robot advisors, insurtech, and cryptocurrencies have emerged around the world. Over the past decade, financial technology has contributed to the access, convenience, and security of financial services for retail users. Meanwhile, artificial intelligence, cloud services, and other technologies are being transformed into wholesale markets in a variety of areas such as trading in financial markets, regulatory and supervisory technologies (regtech and suptech). Many new firms have emerged to deliver new technologies to meet consumer demand, and most officials point to the fact that digital transformation is a strategic priority for the financial sector. The purpose of the article was to substantiate the need for the development of digitalization of the financial sector, analysis of digitalization and security trends, identify areas for further management of consumer expectations of financial products and services. Constant innovation and new technologies in the financial sector, on the one hand, undermine the market and pose threats, and on the other hand, open up many financial opportunities to prosper. The pace of change in financial services is only increasing, as is the need for industries and businesses to respond to them. This paper assesses the steady growth of new business models and technologies emerging in the world and Ukraine in the financial sector.

Keywords: globalization; economy; development; threats; digitalization trends; challenges; financial sector

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1. Introduction

Innovative developments can not only make markets more diverse, competitive, efficient, and inclusive, but also increase concentration. Innovation has introduced competition and increased reach, especially in emerging markets. However, the economics of intermediation combined with new technologies can lead to concentration among both traditional and new financial service providers. The monopolistic or anti-competitive behavior of

large technology platforms is already being tested. As financial services move toward similar technology-driven configurations, regulators are struggling to better regulate and oversee a financial sector that is increasingly characterized by new players and business models; and potential challenges to financial stability, financial integrity, fair competition, and consumer protection (including data confidentiality). The COVID-19 pandemic has accelerated the digital transformation. In particular, the need for digital connectivity to replace physical interactions between consumers and service providers, and in the processes that produce financial services, will be even more important for the economy, financial service providers, businesses, and individuals after COVID-19. In particular, the pandemic has already accelerated the transition to digital payments, intensified e-commerce, which can bring great benefits to technology companies and their activities in the field of finance.

A fundamental feature of capital markets is the need to keep records of payment obligations. The various actors in the payment chain need to trust other links that will not expose them to fraud or liability, as required by customers, reliable counterparties to whom funds can be provided, and reliable processes for their delivery. Investments and insurance in the financial market are subject to uncertainty about future results, unfavorable selection, and moral hazard. Those who create investment products rely on reliable underwriting and execution services to be able to offer a quality product to their clients. Customers, in turn, must be able to trust the reliability of investments and transactions that underlie their ability to buy and sell. All this requires effective management of financial innovation.

In general, the complexity of the interaction between the financial sector and the specific circumstances of different customers due to asymmetric information or uncertainty of results means that the price, maturity or other conditions will inevitably not be entirely appropriate to the circumstances of some customers. They may reject the offer or the intermediary may consider certain segments commercially unviable. The forces driving these changes are forcing us to reconsider the role of digitalization for suppliers and consumers of financial products and services. Mobile money has proven to be an effective gateway for financial development. Bankers and financial support managers need to train their clients to make appropriate financial decisions during the day based on a combination of artificial intelligence, transactional and contextual data. The impact of the financial technology market on the financial sector is growing, and the long-term potential is even greater.

Financial services companies are structured to take into account specific information gaps and economic fluctuations related to intermediation. Banks are developing recommendations to address the issue of resolving the problem of transformation arising from incomplete information about the future liquidity needs of depositors. They also view transaction costs and risks as the need to manage intermediary investments between individuals who have no direct knowledge of other counterparties or information about doing business elsewhere.

Exchanges and brokers search for and transaction costs of individual issuers and investors, reducing information asymmetries by requiring listings and publishing prices, and providing infrastructure and services to reconcile and enable transactions between buyers and sellers who do not know each other. Because much of the mediation process is not easy for customers, the risks can be realized only after a long period and the need of consumers for reliable suppliers is greater than in other industries.

Providing these services requires not only information and financial resources but also real resources. These include manpower, equipment and facilities, financial contracting, account management, and customer transaction processing, which are included in the elements of financial innovation management.

2. Literature review

Continuing the topic of Khalatur S., Stachowiak Z., Zhylenko K., Honcharenko O. & Khalatur O. (Khalatur et al., 2019) on financial instruments and innovations in the business environment of European countries and Ukraine, this article examines the trends of digitalization and security of the financial sector. The authors note that one of the most important tasks of the development of the national economies of both European countries and Ukraine is to stimulate and ensure sustainable economic growth. To this end, all countries are developing innovation and using various financial instruments.

Arefjevs I., Spilbergs A., Natrins, A., Verdenhofs, A, Mavlutova, I., Volkova, T. (Arefjevs et al., 2020) argue that data use, data analysis and understanding of the importance of data at the strategic level are both significant factors and catalysts for future financial sector development. The financial sector is becoming increasingly active and critical to the economy through rapid digitalization. Financial technology companies in Latvia are successfully expanding their activities.

R.Rupeika-Apoga, S.Wendt (2021) studied current events and challenges facing the Latvian financial technology sector. The size and financial results of fintech companies in Latvia over the last ten years indicate certain difficulties, both in growth and in the formation and maintenance of business models that are financially stable. FinTech companies require special regulations on financial technology. Khalatur S., Trokhymets O., Karamushka O. (Khalatur et al., 2020) substantiate the conceptual basis of tax policy formation in globalization conditions.

Danileviciene I., Lace N. (2017) write that growth and development based on innovation is important in all economies of the world. The openness of knowledge, openness of business, and openness of innovations are key characteristics and success factors of the modern global world. Khalatur S. (2017) examines important provisions (including financial) for the development of agriculture in Ukraine.

Frénod E., Ménard P., Safa M. (Frénod et al., 2018) in their research consider two new optimization problems. The first is to find a lending scheme that minimizes the cost of credit for the project, along with the time to achieve the goals. The second problem is that they provide credit, savings schemes to find their best options. Khalatur S., Kriuchko L., Sirko A. (Khalatur et al., 2020) note the need to study the world experience of adaptation of anti-crisis management of enterprises in the conditions of the national economy's transformation.

Makdissi R., Nehme A., Chahine R. (Makdissi et al., 2020) note, that entrepreneurs face complex financial decisions to change their business. Small and medium business owners must have a certain level of knowledge that requires financial knowledge, behavior, and attitudes that will increase the financial productivity of the business. Khalatur S., Vinichenko I., Volovyk D. (Khalatur et al., 2021) in studying the development of modern business processes and outsourcing activities paid great attention to various types of outsourcing (including financial and IT outsourcing).

Stolper O., Walter A. (2017) analyze the role of financial literacy of individuals in the use of professional financial advice and assess whether expert intervention can replace financial literacy.

The United Nations development program Human Development Reports seeks to shift the focus of the development economy from national income accounting to people-centered policies. Vasylieva N. (2019) in her study used a functional comparative approach to develop ways to improve agricultural management.

Velychko O., Velychko L. Ramanauskas J. (Velychko et al., 2016) based on SWOT-analysis applied the author's methodological approach to the retrospective systematic assessment of alternatives for the transformation of

production and logistics enterprises. Zsolt K.S. (2020) in his study focused on limiting the placement of basic financial services in the online space.

Chien-Chiang Leea, Chih-Wei Wangb, Shan-Ju Hoa (Chien-Chiang Leea et al., 2022) explore whether aid flows to the financial sector can improve the recipient country's financial attractiveness from AidData and WBES databases. The results of research by these researchers show that financial assistance is an important determinant of the financial inclusion of firms and countries. Mirzet Šehoa, Mansor H. Ibrahimb, Abbas Mirakhorc (Šehoa et al., 2021) studied the impact of sectoral diversification of credit and financing on bank risk and profitability. The results of the research show that industry diversification of loans and financing reduces profitability and increases the risk of banks. Kitsios F., Giatsidis I., Kamariotou M. (Kitsios et al., 2021) argue that the modern technological environment is constantly changing and forcing all economic units to digital transformation. The digital transformation has two functions, as it allows the financial sector to offer new channels of service through new electronic platforms.

Krylov D., Papaika O., Panchenko O., Pylevych D., Kozlianchenko O., Konoplia N. (Krylov et al., 2022) in their works highlight current trends in the digitalization of financial services. Researchers have found that fintech companies are important for the formation and development of companies working to achieve effective interaction between the financial sector and innovative technologies in the use of mobile applications to most fully and quickly meet customer needs in financial services. Mykhailiuk G., Rustamzade A., Bakhishov A. (Mykhailiuk et al., 2021) note that digitalization is already an important part of modern trends. Researchers also discuss the controversial effects of using new technological solutions and note the possibility of developing modern technologies, creating a favorable basis for hiding many criminal acts, such as money laundering, terrorism, fraud, and tax evasion.

Niemand T., Rigtering J.P. Coen, Kallmunzer A., Kraus S., Maalaoui A. (Niemand et al., 2021) note that technology is rapidly changing the financial industry. Digital technologies are becoming more and more a modern standard in the banking sector; they challenge traditional business models and allow banks to make money. The results of the research show that the level of digitalization of the bank does not affect profitability. Instead, in this time of technological change, banks need to develop a clear vision of digitalization, characterized by innovation, outperforming competitors, and willingness to take risks. Buss K.P., Oberbeck H., Tullius K. (Buss et al., 2021) argue that the changes that are taking place now should not be interpreted as technological shocks, but rather as sectoral developments in systems rationalization. Based on their empirical conclusions, the authors argue that the actual driver of digitalization and the purpose of using digital technologies is an attempt to optimize and control market relations and competitive processes, which are primarily due to the specifics of relevant industries.

Tsindeliani I.A., Proshunin M.M., Sadovskaya T.D., Popkova Z.G., Davydova M.A., Babayan O.A. (Tsindeliani et al., 2022) write that digitalization and globalization of the economy stimulate the processes of international regulatory cooperation and harmonization of legislation, the use of new approaches in the development and adoption of regulations in the financial market. Chen, Z.W., Zhu, K.L., Yue C. (2020) as well emphasize the role of regulation in the sustainable performance of contemporary digitalized banks. The growth of digitalization of relations in the banking sector will contribute to the effective implementation of rules, including those related to the need to protect state interests. Burlacu S., Ciobanu G., Troaca V.A., Gombos C.C. (Burlacu et al., 2021) note that information and telecommunications technologies have changed society, the economy, and financial banking around the world over the past few decades. The current stage of mass digitization is to design an increasing number of managerial, technical, and technological tasks in all sectors of society and economic activity. In the financial sector, digitalization is already rapidly affecting the financial services sector, with a wide range of products, applications, and various processes, as well as the development of business models.

Tanda A., Schena C.M. (2020) write that the financial technology revolution has changed the financial markets, which are now facing a point of no return. New products, services, and processes are offered by new entrants, be it FinTech, BigTech, or digital financial intermediaries. Competitiveness, which stems mainly from new business models adopted for financial services, is forcing existing banks to reconsider their approach to the market and customers. Brandl B., Hornuf L. (2020) note, that the digitalization of financial services has opened a window for new players in the financial industry. The researcher explains the reluctance of traditional banks to fully approve the new opportunities of digital financial services by the peculiarities of the technology itself and the deferred fundamental decisions of banks to modernize their IT infrastructure. Kotliarov I.D. (2020) argues that the digital transformation of the financial industry is causing a profound change in the patterns of interaction between financial market players. The author shows how types of innovations determine the nature of the digital transformation of the financial industry and how they manifest themselves in various digital financial products. The digital transformation of finance includes two aspects: the fintech revolution and the introduction of innovative digital technologies by traditional financial companies.

Mavlutova I., Volkova T., Natrins A., Spilbergs A., Arefjevs I., Miahkykh I. (Mavlutova et al., 2021) write that the development of financial technologies is characterized by the emergence of alternative services and new industries and is highly innovative. The functional equivalent of commonly used terms such as digital disruption and digital transformation is digital innovation, emphasizing strategic orientation, developing new products and business models in one case, and transforming traditional models to work with existing loyal customers in another.

Researchers of Institute of Humanities and Social Sciences (IHSC) of Daugavpils University (DU) have been studying different aspects of digitalization (Menshikov, Sinica 2016; Sinica 2017). In 2021 economists and sociologists of DU realised the scientific research project “Mobile technologies as a factor of business efficiency during the COVID 19 pandemic (the case of Latvia and Poland)” (Daugavpils University, 2021). Research project contributes to the digital economy theory by evaluating the methodology and assessing the level of use of Internet technology in the EU disparities in the use of Internet technology in the EU countries in the period 2012-2020.

Therefore, further research is needed in the management of financial innovations in the context of digitalization trends and the security of the financial sector.

3. Setting objectives

The purpose of the work is to substantiate the need for the development of digitalization of the financial sector, analysis of digitalization and security trends; identify areas for further management of consumer expectations of financial products and services.

Achieving the goal will help solve the following tasks:

1. To identify the impact of digital innovation on key economic fluctuations.
2. Interaction of financial technologies and financial services.
3. Trends that will improve financial services in 2022-2025.
4. Modeling the impact of financial innovations on the efficiency of economic entities.
5. Trends in the digitalization of the insurance market.
6. Mega-trends in the field of financial services: preparation for fundamental changes.

4. Research methodology

When writing the article, general scientific and specific research methods were used, namely: methods of financial analysis, synthesis, comparison, economic and statistical methods, and systematic approach. The theoretical framework of the study is presented below (see Figure 1).

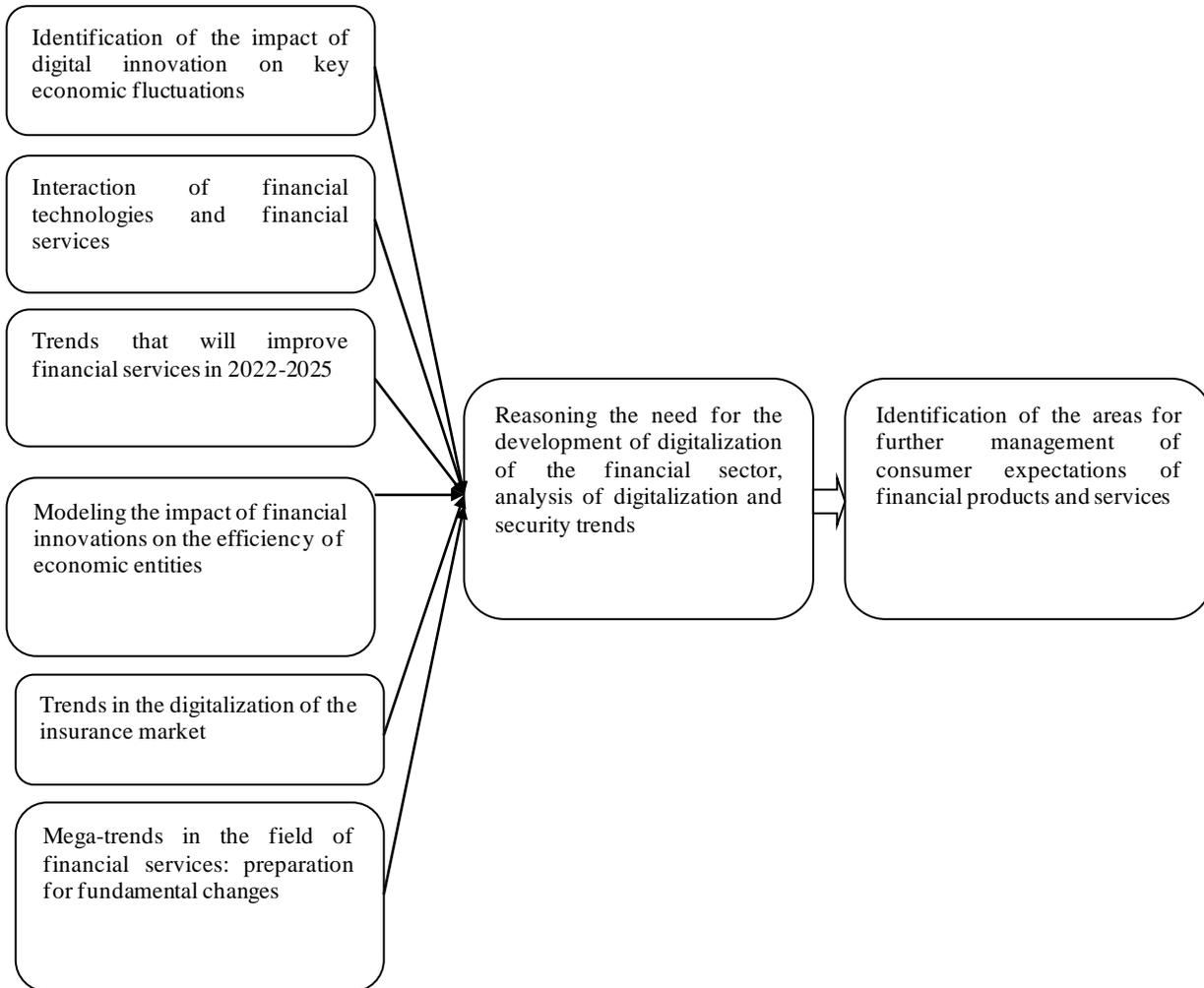


Figure 1. The theoretical framework of the study
Source: the authors

5. Research results

5.1. The impact of digital innovation on key economic fluctuations

The introduction of technology is not new in the financial sector, but many limitations have defined the work environment until recently. By the end of the 20th century, the industry was already characterized by a relatively

high degree of computerization, as most financial services were dematerialized. Payments alone often require physical money or a check, and adapting to new products and services often requires personal or paperwork. Physical infrastructure, such as branches and ATMs, is usually required to interact with customers. Clients wishing to conduct transactions with counterparties using other banks had to use expensive and sometimes slow or risky processes, such as bank transfers. Even after the advent of digital payment systems and the dematerialization of securities, communication remained a barrier to entry - the institution usually had to be licensed and part of a consortium of banks or brokerages to participate in the transaction network. In addition, data processing and storage were expensive, requiring custom work and data centers. This limited the amount of information that could be collected, stored, analyzed, and exchanged to increase efficiency, better price risk, and adapt products to customer needs.

Technological advances in data connectivity, processing and storage, and significant technological advances have taken place in two key areas that have contributed to the current wave of technology-based financing:

- increase the connection. The Internet and mobile technologies are rapidly developing the ability to transmit information and interact remotely between businesses and consumers. Through mobile phones and smartphones, which are almost ubiquitous, technology has greater access to and efficiency of direct delivery channels and promotes low-cost, personalized financial services.

- low costs for calculation and storage of data. The efficiency of the calculations increased exponentially, as the cost of data storage decreased rapidly. The ability to quickly process such data has also increased through the achievement of artificial intelligence and machine learning. Digital technologies, activities, e-commerce generate a lot of new data. Much of the new data relates to individuals (personal data) or companies and can be processed automatically. These advances have created a large amount of new data, tools for analyzing this data, as well as new business models that use knowledge of analysis. Table 1 shows the ownership of an account in a financial institution or a mobile money service provider in the world.

Table 1. Possession of an account in a financial institution or a mobile money service provider in the world on average for 2000-2020

Indicator	Ukraine	Latvia	USA	Eurozone	World
% of the population aged 15 and over	52,30	78,26	91,55	93,47	60,38
women (% of population aged 15 and over)	50,74	76,40	90,52	92,20	56,64
men (% of population aged 15 and over)	54,31	80,34	92,64	94,87	64,20
elderly people (% of the population aged 25+)	52,26	82,13	93,25	95,97	64,21
40% of the poorest (% of the population aged 15+)	42,41	72,58	83,83	92,10	52,16
primary education or less (% of the population aged 15 and over)	21,32	50,30	57,21	82,84	47,15
60% of the richest (% of the population aged 15+)	58,86	82,05	96,64	94,38	65,95
secondary education or more (% of the population aged 15 and over)	58,07	85,03	92,89	96,40	72,67
youth (% of the population aged 15-24)	51,66	58,05	83,55	78,63	46,75
Mobile subscriptions	18382590,33	17210821,14	131112800,38	160806378,86	2065674003,20
Mobile subscriptions (per 100 people)	41,50	45,09	42,51	48,39	29,24

Source: compiled by authors based on World Bank data

As of the end of 2020, the World Bank estimates that there were more than 5 billion mobile subscriptions worldwide. Figure 2 shows the dynamics of the number of subscriptions to mobile communications in Ukraine and around the world. As a result, most financial services can now be provided directly in digital form, which greatly expands access to finance.

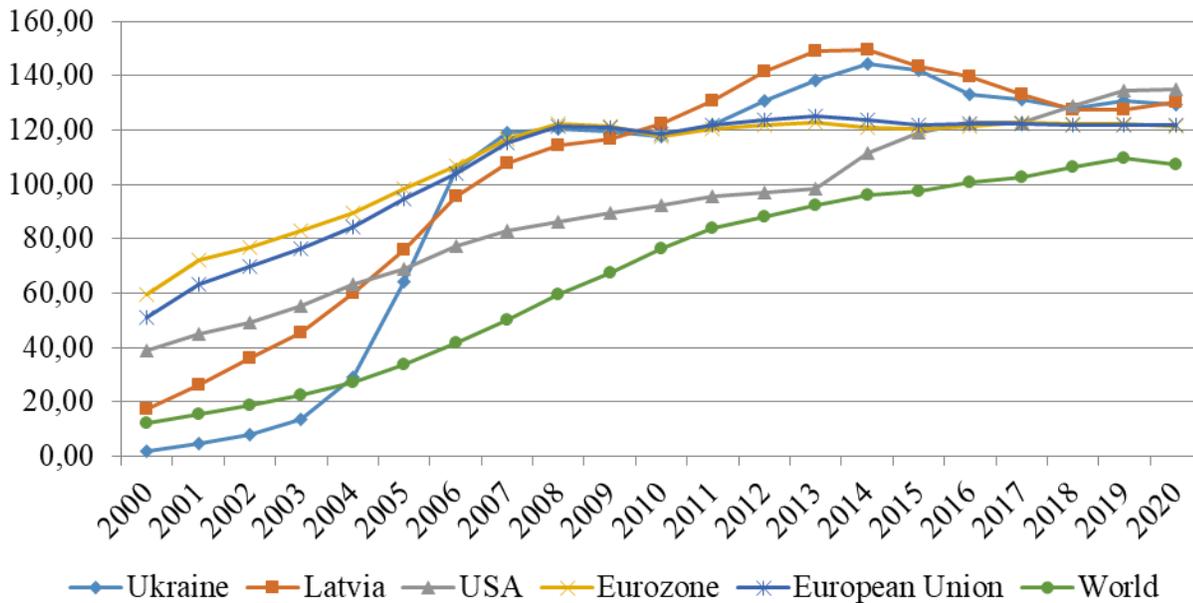


Figure 2. Dynamics of the number of mobile subscriptions (per 100 people) for 2000-2020
 Source: compiled by authors based on World Bank data

A new class of services and assets can in principle even be provided without the need for an intermediary. At the same time, the rapid growth of connections has led to major networking effects and strengthened the position created by intermediaries offering mobile networks and subscriptions, including telecommunications companies, especially in some emerging markets. In addition, the development of widely used applications and services such as social media, search and social networking have enabled more casual peer-to-peer interactions. They are increasingly attracted by economic interactions, and this has strengthened the position of companies providing these services.

5.2. Interaction of financial technologies and financial services

Financial technology (FinTech) has evolved from startups that want to overtake existing companies to a wider ecosystem of different enterprises, and in many cases are looking for partnerships. Fintech startups need capital, they need customers. At the same time, existing enterprises need new approaches to stimulate change and achieve their innovative development. The new approach to digitalization-based partnerships offers alternative strategies for both new entrants and startups, but it also carries a new set of risks.

Big Data is used in a wide range of traditional financial services and new businesses to improve credit analysis, process efficiency, risk management, product design, customer service, and more. Data can be an important resource and driving force for economic development.

These advances also allow the creation of many new business models for the provision of technology services, one of which is cloud computing. They combine the ability of an enterprise or individual to connect to data-driven and externally managed centers with low-cost computing power and storage. The result is the ability to obtain on-demand infrastructures and reduce the fixed cost barrier to accessing financial services.

Innovations in cloud services are rapid as venture capital grows and private equity financing shifts to new cloud technology and development operations (DevOps) programs over the past three years. Figure 3 shows the structure of financial sector entities that influence digitalization trends in Ukraine and the world.

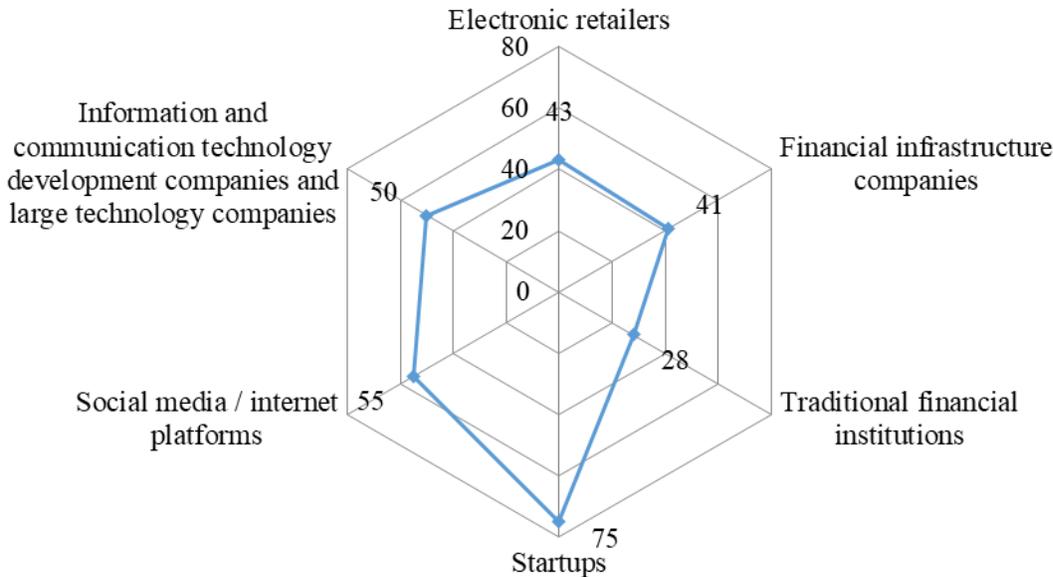


Figure 3. Structure of financial sector entities that influence digitalization trends

Source: compiled by authors based on The IMD World Digital Competitiveness Ranking 2021

Financial intermediaries can reduce marginal costs through automation and processing, which are accelerated with the expanded use of data and processes based on artificial intelligence. Digital innovation can also help overcome spatial (geographical) barriers and even bridge differences between jurisdictions. Increased use of digital tools and platforms for many economic activities makes it possible to radically introduce special financial products in non-financial activities, reducing costs and risks of attracting customers.

Another result of the technological advances described above has been the widespread emergence of platform business models. Businesses use the connections of individuals and companies, as well as the ability to quickly and easily cooperate, find contractors, package, and supply a variety of digital and physical goods and services. Platforms are bilateral or multilateral markets that use networking effects to create more value for each participant, increasing the number of other participants. The platform provider also benefits from network effects that attract more users, revenue-generating transactions, and data that in turn allow providers to target more products or services to users.

5.3. Trends that will improve financial services in 2022-2025

The financial technology industry can be described as the best place for change when customers liked the idea of on-demand financing, which is applied through mobile and cloud computing. It is more convenient for customers to manage their assets online. Thus, we can identify the main trends of 2022-2025 in the financial sector: the expansion of blockchain solutions; artificial intelligence (AI) and machine learning (ML) technologies; open banking; mobile technologies; regulatory technology (RegTech) (Figure 4).

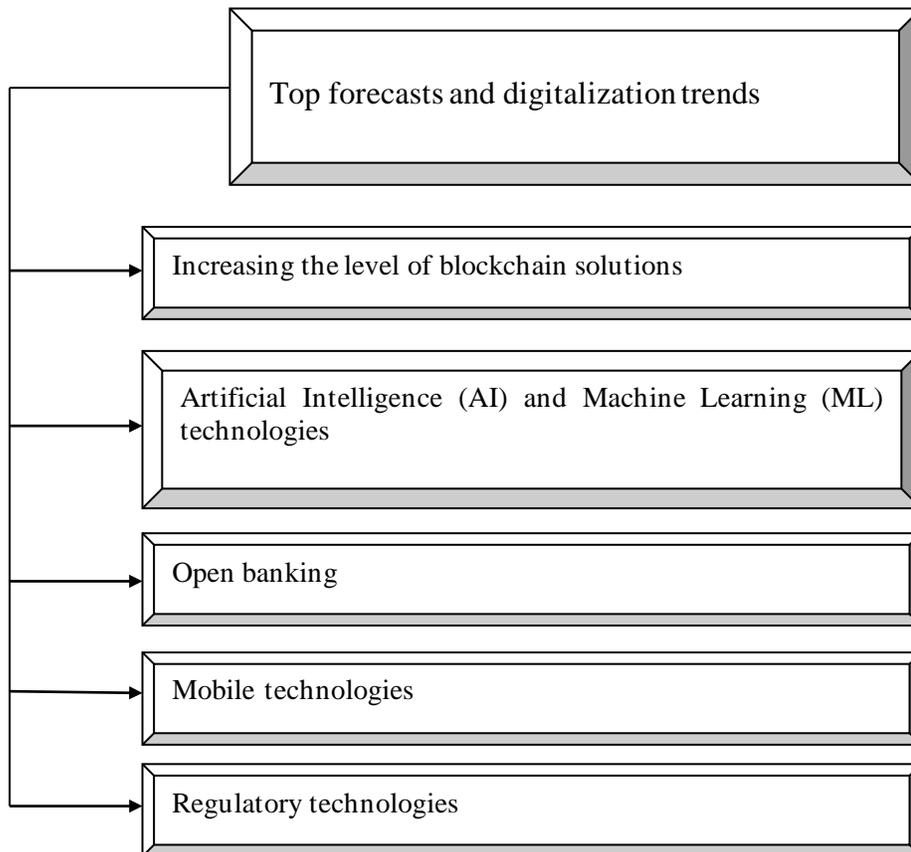


Figure 4. Top forecasts and trends of digitalization of the financial sector in 2022-2025

Source: compiled by authors based on The IMD World Digital Competitiveness Ranking 2021 and Business Data Platform

Thus, we will consider more significantly these trends in the digitalization of the financial sector. The Blockchain for Secure Financial Transactions was created primarily to make cryptocurrency transactions secure and secure against hacking attempts. In financial technology, this trend works as follows: there is a chain of financial transactions consisting of blocks, each cryptocurrency transaction is part of a block in this chain and is combined with the next and previous transaction. Therefore, any changes made to the previous transaction require the approval of all stakeholders involved in the chain. In addition, the entire system is completely encrypted, which makes it impossible to penetrate it.

When it comes to regular currency transactions, only code snippets are transferred from one account to another. Although security remains a top priority, more and more financial institutions are beginning to implement blockchain in banking systems due to unsurpassed security. Figure 5 shows the dynamics of the number of people who use the Internet in Ukraine and around the world.

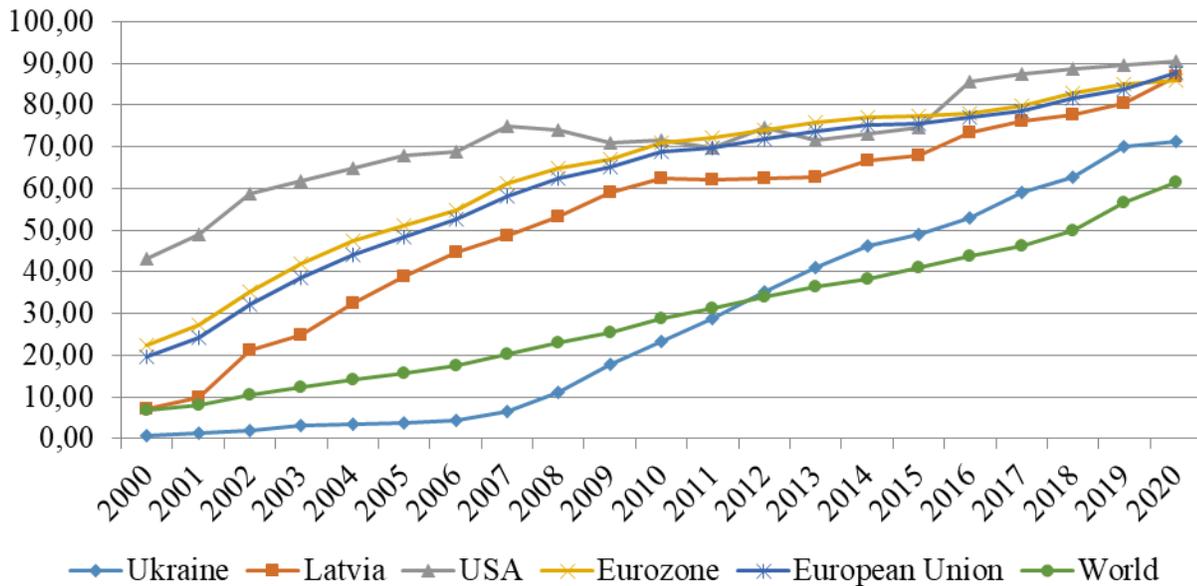


Figure 5. Dynamics of the number of people who use the Internet in 2000-2020, % of the population
Source: compiled by authors based on World Bank data and The Global Competitiveness Report 2020

However, the blockchain is not fully used in the financial sector. In 60% of cases, this fintech trend is implemented to protect transactions. Thanks to the blockchain it became possible to: make a transaction faster without the need for an intermediary; reducing the need for things in the financial back office, which saves a lot of money.

The benefits of customers from Open Banking:

- if the client has accounts in four different banks, he does not need to use four separate banking programs;
- risks of refund are excluded (customers make direct payments from account to account);
- lower transaction costs.

Demand for mobile technology is part of the financial technology trend, which combines physical and digital banking with other financial services. Thus, fintech companies will become allies rather than competitors for outdated financial institutions, which will lead to a significant increase in fintech outsourcing services sold worldwide.

Regulatory technology (RegTech) means regulatory management in the financial sector through technology. The rise in digital solutions has led to cyberattacks, money laundering, hacking and other fraud. The goal of regulatory technology (RegTech) is to solve all this by using machine learning algorithms based on big data.

Advantages of regulatory technology (RegTech) for financial technology (FinTech), that, using RegTech in its financial services, the company will be able to:

- track financial transactions in real-time to create accurate financial statements;
- reduce the risk of money laundering in the organization;
- improve and maintain the compliance of financial technologies with existing needs;
- reduce costs associated with manual data management;
- increase data protection.

The RegTech Knowledge Center presents many cases where technology is used to carry out regulatory activities:

- improve product offering through the fully automated reporting service MiFIR (The Markets In Financial Instruments Regulation);
- reduce the cost of regulatory reporting;
- meet regulatory state goals;

solve the complexities of the regulatory environment.

To summarize the main trends in financial technology in 2021, it should be noted that 70% of companies see customer satisfaction as a key driver of all digital technology improvements. Customers trust businesses more if they are out apply technological solutions to facilitate, secure and smooth any transaction. In Figure 6 it is shown the main reasons for the introduction of modern financial technology solutions by users.

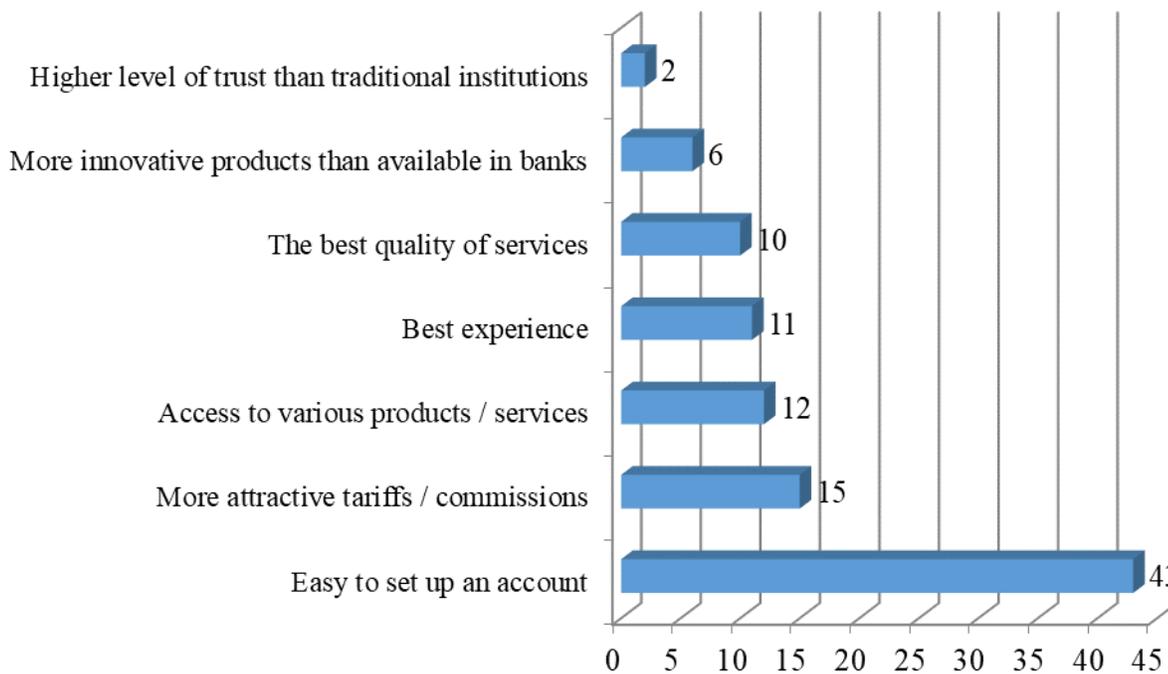


Figure 6. The main reasons for the implementation of modern financial technology solutions by users, %

Source: compiled by authors based on The IMD World Digital Competitiveness Ranking 2021 and Intelligent software engineering

In recent years, the financial technology industry has undergone major transformations. Changes in this area can be explained both by the pandemic situation and new problems in the financial sector, which can be solved by:

- solutions based on blockchain technologies, which aim to make transactions fast and secure;
- machine learning and artificial intelligence in financial technologies that help to interact more effectively with customers;
- mobile financial technologies provide instant payments;
- Regulatory technologies (RegTech) are focused on improving efficiency and eliminating fraud.

The major transformations in the financial technology industry today are determined by the fact that people are accessing the Internet more intensively than ever because of the global pandemic. And market players are going to look for new opportunities to make the digitalization of the financial technology business smooth, secure and profitable.

5.4. Modeling the impact of financial innovations on the efficiency of economic entities

Analysis of financial innovations is important for business managers and entrepreneurs because it can help improve the ability of the business to develop and increase productivity. However, the external environment is much more important for entrepreneurs and managers, because it stimulates vigilance to unexpected factors. Given that productivity is an important goal of business entities, it is generally accepted that the structure and decision-making of the enterprise are influenced by the complexity and volatility of digitalization trends (Nassar, Strielkowski, 2022).

Many businesses compete in the global market, not just the domestic market. Changes in technique, technology, and improving the ability of the information retrieval process require more timely, efficient, and competitive responses. The rapid changes in the financial sector that are taking place in many countries are affecting the activities of enterprises, in addition to the desired product, the properties of consumers are increasingly diverse. Businesses need to be vigilant and aware of the impact of the reality of this environment, as it can be an effective player in the global economy. Companies that compete strategically, their owners and managers will look for patterns that can help them understand the external environment, and this may differ from their expectations. This is important for decision-makers who have an understanding of the company's competitive position.

The main components of the external business environment in the management of financial innovations:

a) The technological environment can be defined as a set of tools such as knowledge, methods, materials and tools used to achieve practical results. Technology has the potential to improve speed, quality, and efficiency. Some business owners or managers are reluctant to make technological changes because they are unsure of security and privacy. For such business owners, the idea of e-commerce in any form is too risky for their business. The idea of business related to the Internet or electronic data is not a necessary thing, but something that should be avoided at all costs. Other issues concern the lack of information technology professionals because the technology industry seems so complex, many companies do not use new technologies due to a lack of staff experience to solve potential problems.

b) The economic environment is vital for any organization. It is important for management to distinguish between short-term phenomena and more fundamental changes in the assessment of general economic activity. The political environment is considered through the legal framework where the organization operates and is carried out through laws and regulations governing the activities of the enterprise. The political stability of the external environment is also a necessity for the effective functioning of a business.

c) Political and legal environment influenced by political processes and legislation. These factors, being restrictive, tend to reduce the potential of the financial institution. The influence of regulators is pervasive, and understanding how they work is important to protect business interests and promote new programs to achieve greater productivity. It is important to understand the complexity of the legal environment, to avoid situations of inefficiency. In particular, the business industry needs to know about regulation, doing business, aspects of taxation, company control legislation, monopolies, mergers, and restrictive practices.

d) The competitive environment must also be taken into account when assessing the nature of competition, as well as profitability, as it often has a direct impact on the development of the industry. The competitive environment consists of many factors, especially the resource strategy, which includes potential or existing competitors, customers, and suppliers. There is an increasing tendency for firms to expand their activities. Globalization provides both opportunities for access to larger potential markets and a wide base of production factors.

e) Organizational efficiency is a source of influence on the actions of companies and the degree to which the organization achieves its goals and objectives through the strategies and policies of the organization. Organizational efficiency is also seen as a measure of how a manager uses the organization's resources to effectively achieve the organization's goals, as well as to satisfy all stakeholders.

The general model for determining the impact of the external environment on the efficiency of economic entities is shown below, the external environment (EXTE) has five dimensions. The above relationship can be expressed in the following characteristics of the model:

$$SMEP = f (EXTE) (1)$$

$$SMEP = f (PE, TE, EE, CE, FE) (2)$$

Where PE = Political environment

TE = Technological environment

EE = Economic environment

CE = Competitive environment

FE - financial environment

SMEP = Effects activity of the enterprise

Explicitly, the model can be expressed in the form:

$$SMEP = b_0 + b_1PE + b_2TE + b_3EE + b_4CE + b_5FE + U_t (2)$$

Where, b_0 = regression constant or free coefficient

b_1, b_2, b_3, b_4, b_5 Regression coefficient

U_t = error value

A priori: $b_1 > 0, b_2 > 0, b_3 > 0, b_4 > 0, b_5 > 0$

Thus, the assessment of the external environment provides an effective analysis to determine its impact on the activities of enterprises. There is a lack of understanding of the impact of the external environment on business, on the organizational productivity of the enterprise. It can be argued that organizational efficiency does not take place in a vacuum, but takes place in a certain environment that has challenges and opportunities. This study should provide an understanding of the relationship between the external environment and productivity. If companies effectively maintain their business goals following the existing environment, they will actively and favorably maintain efficiency. Importantly, in assessing a business, the environment not only contributes to the development of efficiency and effectiveness of the enterprise but also contributes to increased productivity, which will lead to improved or increased market share, operations, and competitive advantage. The external environment is a relatively remote environment and the elements that make it up to have an indirect impact on organizational performance.

The external business environment is strongly correlated with the small and medium scale of the entity, so it is an important aspect of achieving and effectively achieving production goals.

Based on the findings of the study, the following recommendations can be made:

- 1) The productivity of the entity should be a strategic priority, as it has been established that it is influenced by a wide range of factors.
- 2) The economic environment makes a negative contribution to the financial and economic activities of the enterprise, so management must make sure that all factors caused by the economic environment increase productivity.
- 3) The risk posed by various external factors is great; therefore, it is important to reduce these risks if the entity intends to operate efficiently.
- 4) Key stakeholders should ensure the effective implementation of strategic plans to help strengthen existing production orientations capable of reducing the impact of business environment factors. Businesses need to balance the focus on market opportunities in terms of achieving goals, assessing the impact of business environment factors, and managing financial innovation.

5.5. Trends in the digitalization of the insurance market

Over the decades, insurance has emerged as a fairly stable industry, characterized by low but stable growth rates and return on equity. This is changing at an accelerated pace. The 2008 financial crisis and the recent COVID-19 crisis have called into question the profitability of insurers and stock markets. In a traditionally low interaction, a tightly regulated industry that has long believed that it is protected from failure, digitalization is now beginning to dramatically change customer behavior and business models.

What is digital insurance? Where are the opportunities for transformation? Technological trends, trends of digitalization in the insurance industry will shape its future - and the future of enterprises. Insurers can place themselves at the center of a customer-driven, data-driven ecosystem that will drive the lives and economies of tomorrow's generations (see Table 3).

Table 3. The main trends in the insurance sector in Ukraine and Latvia on average for 2000-2020

Indicator	Ukraine	Latvia
Distribution of social insurance programs to the poorest quintiles (% of the total amount of social insurance payments)	13,83	8,20
Coverage by social insurance programs (% of population)	50,89	45,95
Coverage of social insurance programs in the 2nd quintile (% of population)	51,73	45,72
Coverage of social insurance programs in the 3rd quintile (% of the population)	51,33	48,13
Coverage of social insurance programs in the 4th quintile (% of the population)	51,98	49,87
Coverage of social insurance programs in the poorest quintile (% of population)	51,33	41,56
Coverage of social insurance programs in the richest quintile (% of the population)	48,10	44,48

Source: compiled by authors based on World Bank data

It is necessary to determine how to successfully modernize and digitize insurance, effectively address challenges and opportunities for transformation, to influence insurance business models, organizational strategies, and resources. It will also affect the very foundations of insurance technology, the transfer of outdated models to the digital age. For decades, insurance market participants have created reliable insurance models and processes backed by a strong IT foundation. They have developed advanced analytics for underwriting, risk assessment, and fraud management.

Alas, the new world needs profound change. Often built in isolation, supporting isolated departments or resulting in different levels of mergers and acquisitions (M&A), rigid outdated processes and systems fail to provide the speed, openness, and scalability that insurers need today. Insurers have already launched many modernization initiatives. The reasons for this are various: catching up with digital innovations, developing multi-channel insurance services, experimenting with cloud technologies, or even insurance based on the use of the Internet of Things. And while the success has been great, competition is growing from global technology market participants, and technology in insurance means insurers need to step up their efforts.

Preparing for a paradigm shift to meet the challenges of the digital world and gain a winning position in it, three key actions will be essential for insurers:

1) Transformation of operational insurance models to reduce maintenance costs by up to 50% and increase speed. This strategic step should include innovative business process outsourcing services, implementing intelligent automation through transformation and cloud infrastructure.

2) Modernization of major insurance platforms will allow insurers to adapt up to 40 times faster to market changes and respond to growing customer demands in real-time. This can be significantly accelerated through the latest migration, rewriting, re-platforming, and a major insurance technology transformation program.

3) Digitize insurance processes, services, and business models to increase customer proximity and create new revenue streams. From adaptation to claims management, the next level of interaction between customers and employees, intelligent automation, To create intelligent solutions in insurance services will need tools of artificial intelligence and the Internet of Things (AI, IoT).

To thrive, insurers need to create appropriate partnership services to enrich their offerings, monetize their data, and turn it into profit. Insurers need to start creating a new support information system today. The transition from claims-oriented to customer-oriented insurance requires strategic changes. From product design to financing using specific initiatives are necessary amplifiers.

Innovative insurance services can combine the latest IT management frameworks, automation tools, and hybrid cloud technologies, which reduce processing costs by 70% compared to traditional insurance systems. Advanced digital workstations allow you to combine and develop opportunities for collaboration and knowledge management, transform and increase productivity by up to 30%. Next-generation business process outsourcing can include an innovative combination of digital frameworks and services for process outsourcing, reducing costs by 30% or more.

Upgrading the core insurance platform can rely on robotic data, migration policy rules, and tools to replicate the platform, rewrite, and release precious resources blocked today in traditional outdated systems. This will allow for better alignment with business and future development drivers. Next-generation insurance platforms can leverage credit, the latest data-driven technologies, multi-channel and cloud technologies to streamline insurance processes, reduce risks and improve the customer experience. They will allow you to build basic insurance services on an innovative, competitive basis.

Security guidelines can use artificial intelligence, real-time monitoring, including automation to detect and prevent threats. Applications range from cybersecurity to fraud to compliance.

In the insurance process digitization model, multi-channel customer experience platforms (CX) allow you to personalize customer experience (CX) at all points of contact. Insurers should take advantage of these platforms, which typically improve market speed and customer satisfaction by more than 30%.

Robotic Process Automation (RPA), in particular, consultants and virtual assistants, can manage repetitive tasks and help reduce the cost of administrative and regulatory processes by at least 50%, improving quality and speed. Deploying the Internet says and offers endless opportunities for insurers, from underwriting models to providing products based on the use of dynamic pricing. Insurers can even change the rules of the game, moving from risk protection to risk prevention. Open insurance platforms and open application programming interfaces (APIs) can enable customer-centric insurance products and services that facilitate partner connectivity, and the creation of open insurance products is distributed and serviced by third parties. This helps to attract new partners and services into a single platform to serve the needs of ecosystems that go beyond insurance services. Thus, strategic transformation initiatives and digitalization trends will shape the future of insurance in Ukraine and the world.

5.6. Mega-trends in the field of financial services: preparation for fundamental changes

Mega-trends affecting the financial services industry include:

1. The growing importance of the individual investor. Individual investors are accumulating wealth faster than in previous years, thanks to an aging population and the recovery of stocks and non-financial assets after the

2008 crisis. In developed markets, retirement savings have largely shifted from defined benefit plans to defined contribution plans, making people increasingly responsible for making investment decisions on their own.

2. Technology as a means of stimulation. Virtually all companies have become technology companies. With the acceleration of technology and cloud computing, financial services companies are limited only by their ability to imagine what is possible. Financial services and all other industries must use technology to provide greater and better value to customers.

3. Geopolitical changes and their economic impact. A number of interrelated trends are changing the geopolitical landscape of financial services companies. In terms of trade, there has been a retreat into globalization, greater freedom of action within borders, and increased restrictions within national borders. Restructuring traditional trade and financial relationships between emerging markets replaces long-standing trade ties. The effects of coronavirus force organizations to reconsider their future workplace.

Financial services companies have responded to these trends in two ways. First, they form strategic goals, evaluate their purpose in society, and relate that goal to what they do and how they do it. Second, they are increasingly looking for new ways to create value for all stakeholders - not just shareholders, but also customers, employees and the communities in which they work. Financial services companies, in particular, evaluate how they invest and how they work with a social goal in mind. And asset owners are increasingly thinking about the impact on society of each dollar they invest, taking into account environmental, social and environmental factors in their investment process. Table 3 shows the export and import of insurance and financial services in the studied countries and regions on average for 2000-2020.

Table 3. Exports and imports of insurance and financial services in the studied countries and regions on average for 2000-2020

Indicator	Ukraine	Latvia	USA	Eurozone	European Union	World
Insurance and financial services (% of exports of commercial services)	1,50	4,05	9,10	6,52	6,06	7,08
Insurance and financial services (% of imports of commercial services)	7,24	5,58	10,30	5,93	5,81	7,25
Insurance and financial services (% of exports of services)	1,47	4,05	8,61	7,83	7,20	8,96
Insurance and financial services (% of imports of services)	6,83	5,51	9,35	7,01	6,67	6,86

Source: compiled by authors based on World Bank data

The purpose of the business varies from company to company, so the ways in which asset owners, independent funds, investment management firms and corporations display environmental, social and corporate governance (ESG) in their investment habits will also differ. One organization may be more concerned about climate change and another may be more interested in social justice. This diversity of thinking is very powerful, because all companies work together to change the situation for the better. In the past, the lack of standardization of ESG investment practices has been an obstacle for investors in choosing how to allocate their investments according to ESG principles.

Creating new sources of value. Value is a simple concept that is difficult to achieve: it shows how companies provide their customers with better solutions at a lower cost, with less risk and tighter controls to achieve better results for customers. This pursuit of value encourages investment firms to become even more efficient in providing products and services to their clients. Achieving value in this way requires companies to use technological data and digital approaches.

To enhance digital transformation and digital implementation, a modular approach with an open architecture is needed, in which companies from all over the industry work together to provide customers with a choice of suppliers. As companies think about the next few years, the ability to align their goals with what they do and how they do it will remain important. The ESG review will continue to climb up the value curve for investors. This value will depend on what stakeholders expect from their suppliers or whether citizens want more from their public funds; retirees have higher expectations for pension funds; or clients who expect more from their investment managers. Similarly, companies will continue to seek value and evaluate it in terms that can be quantified and understood. Companies that can effectively implement digitalization trends in their operations can be those that not only survive but also thrive in fast-changing times.

Conclusions

The scientific novelty of the study is to assess the general model of determining the impact of the external environment on the efficiency of economic entities, which has five dimensions: political environment, technological environment, economic environment, competitive environment, financial environment. The scientific value of the results is to determine the impact of digital innovation on key economic fluctuations and security; substantiation of trends that will improve financial services in 2022-2025; analysis of trends in the digitalization of the insurance market.

Examining the trends of globalization and security of the financial sector, it can be drawn the following conclusions:

1. Digital technologies in the financial sector help reduce the cost of collecting, storing, processing, and sharing information - including search, replication, tracking, and verification costs. In finance, this can help borrowers find a suitable loan offer faster, or help investors find an investment product that suits their specific needs.

2. Blockchain technologies provide a set of basic opportunities that facilitate the work of individuals and enterprises, interaction on an "equal-equal" basis, even if they do not know each other in advance (distrustful context). Financial sector players use technology to solve the problem of economic fluctuations. They can close information gaps and reduce the cost of reducing information asymmetry.

3. Data and automation facilitate the execution and monitoring of complex contracts and the creation of fuller markets. Traditional core banking systems and sales channels have been built on standardized products and have not contributed to a consumer-oriented approach. More individual services, such as loans, investment advice or retirement planning, which can take into account the individual circumstances of the borrower for different results and conditions, required highly qualified and expensive experts.

4. Automation of processes with the support of financial technologies reduces the cost of customization for individual products and can track various unforeseen situations in a wide range of results. Digital marketing systems allow you to find a sufficient customer base for specialized products. Increased data availability and computing power can improve price risk, tailor a product or service to a customer's needs, and potentially design a range of products that are executed and monitored through smart contracts or other new financial technologies.

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