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DIGITALIZATION OF THE FINANCIAL SYSTEM IN THE CONTEXT OF ENSURING NATIONAL SECURITY

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ABSTRACT

In the article, the role of digitalization of the financial system in ensuring the national security of the country is considered. This is implemented through the study of the national security structure as an integral system, isolation of the role of financial security in formation of stable development of the country, description of its significance for formation of the national security of the country. This, in turn, it is possible to state that financial security is a characteristic of the specific state of the financial system functioning of the country and it is substantiated in the article that there is relationship between this system and the financial security level. In the future, the structure of the financial system was considered as a system, its main components were determined, and formation of prerequisites was specified. To consider digitalization features of financial systems in the article, the essence of digital transformations was considered, prerequisites of these transformations of financial systems were defined. In the future, it is specified that first digitalization of financial systems happens through digital transformation systems of public finance and active using of digital technologies within the domestic financial market. In the article, the role of the public finances system in providing national economy was determined in detail, positive and negative consequences of digital transformations of these systems were defined. Characteristic traits of the financial market functioning within the national economy were also identified, features of its digital transformations were defined, namely positive and negative consequences its digitalization were highlighted. As a result, constructive and destructive consequences of digitalization of financial systems to ensure national security were determined.

Keywords: *Digitalization, Financial System, National Security, Public Safety Finance System, Financial Market, Financial Institution, Banking Institution, Financial Safety, Economic Security.*

1. INTRODUCTION

Ensuring national security in the digitalization era of all spheres of modern society without exception is one of the most important and complex tasks. Despite the fact that the use of digital technologies allows economic entities obtaining significant positive results for their own activities, creates more favorable conditions for making decisions to increase stable functioning of the national economy and the social sphere, digitalization also creates new threats and challenges for both the economy and the national security of the country in general.

In modern conditions, we can watch considerable level of digital transformation, primarily of financial

systems. Development and adaptation of digital technologies precisely in functioning of these systems is happening today at the fastest pace compared to digital transformations of other spheres of society.

However, as the practice of application of digital technologies shows, they also create threats to the functioning of financial systems of countries in general, and for activities financial institutions. According to the Governor of the Bank of Japan, "quick digitalization of finance in Asia may create new risks to stability of the financial system, emphasizing that the right balance between benefits and costs of financial innovations is required" [1].

2. LITERATURE REVIEW

Using modern information and communication technologies significantly changed the established model of the functioning of financial systems and its individual components. These technologies are actively used both in public finance, and financial institutions in their work. This situation is conditioned in the first queue by significant advantages that specified technology should be received by these institutions.

Pronko L. et al., Llazo Edlira, Li Naijiao, Tulchynska S. [2-5] investigate innovative management of labor potential in the digitalization system of financial and economic security, analyze trends and prospects for development of the financial system under the influence of digitalization processes, and assess financial return on investment in the digitalization context and the use of AI. Kartikasari, E.D. et al., Desyatnyuk, O. et al., Askarova, A.K. et al. [6-8] investigated features of transformation of information systems in management of financial indicators in the digitalization context, considered the impact of digitalization on financial systems and services, and also analyzed current trends in development of the financial and credit system in the digitalization context.

René W.H. van der Linden et al., Yu Y., Alraggad, Mishael Mohammad et al. [9-12] investigated financial interdependence in the digitalization concept, the impact of the financial system on carbon intensity under conditions of active development of digitalization, and analyzed the role of digitalization in working with electronic evidence in the context of ensuring national security. Novikov, V. V., Samusevych Y.V. et al., David S. Bedford et al. [13-15] studied features of the economy digitalization as a path to business leadership and national security, analyzed convergence trends in the chain "economy - education - digitalization - national security", and outlined trends in automation, analytics, and efficiency of the financial function in the digitalization context.

Borojo Dinkneh Gebre et al., Fang Mingjie et al., Lulaj Enkeleda [16-18] investigated the impact of climate change on financing and digitalization of resources and energy intensity, analyzed ethical dilemmas in supply chain of financing, and proved that digitalization is a catalyst for change in finance.

Wahyudi H. et al., Lei Yuyan, Yang Cunyi et al. [19-21] revealed digitalization features of Islamic finance in the era of the Industrial Revolution 5.0, analyzed trends in the use of digitalization to improve private financing, and investigated digitalization of banks and inclusive financing.

Scientific publications Raza Hamad et al., Mazhar Maria et al., Grigoraș-Ichim C.E. et al., Viknianska A. et al. [22-25] demonstrate research results on algorithmic learning, big data for the finance digitalization, the role of eco-digitalization, green finance and green technologies, the impact of digitalization and various transformations on the financial system and national security. Popelo O. et al., Anamaria-Geanina Macovei et al., Andriushchenko O. et al. [26-28] investigated the role of the digital business ecosystem in development of regions, analyzed features of the functioning of the insurance industry under the influence of digitalization, and investigated development of the blockchain technology as a factor in managing financial stability of the enterprise.

However, despite a significant number of publications, the issue of digitalization of the financial system in the context of ensuring national security is becoming increasingly relevant and requires further detailed study and analysis.

Thus, taking into account the results of scientific research that were considered above, we can formulate the goal of the article - to substantiate the theoretical and applied principles of the impact of digitalization on the functioning of the financial system in the context of ensuring national security.

To achieve the goal, the following tasks were defined: to consider the national security system and determine the place of financial security in its structure; to substantiate the role of financial security in the formation of the country's national security; to describe the relationship between the financial system and the country's financial security system; to investigate the structure of the financial system; to determine the prerequisites for the formation of the country's financial system; to describe the essence and features of the digitalization process; to specify the positive and negative consequences of the digital

transformation of the public finance system; to consider the essence of the financial market, the characteristics of its functioning and the role in the formation of the country's national security; to substantiate the positive and negative consequences of digitalization for the functioning of the financial market; to determine the constructive and destructive consequences of digitalization of the financial system for ensuring national security.

3. METHODOLOGY

To carry out the research, a range of general and special services and methods were involved. In particular, methods of the content analysis and logical generalization – for concretization of entities of digitalization and definition of its features; methods of abstraction and observation – for justification of the specifics of the financial security formation and its roles in shaping the national security of countries, definition features of interconnection between the financial system and financial security system of countries; systemic-structural approach – for description of the national security systems and specification of financial security places in its structure, justification of the financial system as a whole formation, analysis of its structural constructions; methods of analysis and synthesis – to determine prerequisite of digital transformations of financial systems and descriptions of the roles of the financial market in formation of the proper equal national security; systematization method – to determine characteristic features of the financial market functioning, specification of positive and negative consequences of digital transformations of public finance systems; grouping method – to determine positive and negative consequences of the financial market digitalization; methods of induction, deduction, expert methods – to find out constructive and destructive consequences of digitalization of financial systems to ensure national security. Also, in the article statistical and graph-analytical methods for presentation of information to confirm the received during the study results were used.

4. RESULTS

Thus, we'd like to note that ensuring the national security of any country in modern conditions really requires significant efforts to maintain stability in various spheres of the country's functioning. At the same time, an important role in ensuring national security is usually played by the level of its economic security, that is, stability of the national economy functioning, its ability to develop effectively in various conditions of political, social and economic life of society.

The experience of, for example, Ukraine shows that for the national security of the country, quite complex, unpredictable, crisis phenomena may arise, which may be accompanied by military aggression, requiring systemic and complex solutions to protect national sovereignty. However, it is quite clear that effective protection is possible only with available financial resources, which requires formation of conditions for the national economy development, its stable functioning even in extremely difficult external conditions. All this is confirmed by a significant number of historical facts and events, when significant decrease of economic potential of countries led to loss of strategic positions, even despite the tactical military victories.

The role of the economy in shaping national security is leading. At the same time, within economic systems an important place is taken by stable functioning of financial systems, which is the basis for the national economy development. In modern conditions without proper functioning of the specified systems to form favorable conditions for economic development, stable functioning of economic subjects is impossible. Financial relationship penetrates all spheres of modern society and therefore needs support and favorable conditions for their development between economic subjects.

Of course, national security depends on equal economic security of the country, and accordingly, form its state financial security. Fig. 1 presents a conceptual diagram of the role of financial security in general system of the national security of any countries.

With data in Fig. 1 we can state that national security as a holistic system is the multi-component system that depends on development of significant quantities of subsystems that, collectively, interact form conditions for ensuring proper equal national security in the country. Among these elements the leading role, as already it was noted, is plaid by economic security, which is also in its own structure contains significant number of subsystems, support proper equal certain species of economic security is also important for elements of strategic development of countries. Financial security among these components is an important element and in its structure consists of a number of components that characterize all directions of formation and use without exception of financial resources within the national economy.

The individual ones components of the systems national security outlined in Fig. 1 are enough closely related among themselves, partly determine

the level of each other's safety, that significantly complicates support of the national safety at place.

Formation of financial security in the country is important from the perspective software of the national security. Available financial resources, relevant funds of monetary funds are a long-term perspective that gives possibility form strong financial basis for development of countries and in case of aggression they can be used for counteraction and protection. Presence of these reserves forms prerequisites specifically for the long-term development of countries.

Accordingly, taking into account specificity of the financial security formation, you can state that its role in shaping national security of countries consists of the following:

– characteristics of the protection level of financial interests of countries that affects formation of conditions for its stable functioning;

– features of the ability of countries to counteract external crisis phenomenon that is taking place within the global financial systems, which ultimately gives opportunity to stabilize economic situation in the country, avoid complex financial losses, which negatively affects implementation of investment projects, support enterprises, provide stable functioning in social spheres;

– characteristics of stable functioning of financial systems of countries, and therefore effictive activities of financial institutions in the financial services market, other economic subjects that gives opportunity to provide receipt of resources within the public finances system and spending them for defense, protection and security measures, etc;

– features of effective functioning of transformations of internal resources, that is funds of households, entities entrepreneurial activities in domestic investments and credit funds that are used for implementation within countries when creating investment projects, including national projects; this contributes to reduction of dependencies of financial systems of countries from external financing;

– characteristics of the ability of state institutions to regulate financial flows resources, make it impossible implementation to launder funds, finance non-degradable activities which has a positive impact on the economy stability in the country and accordingly national security, etc.

Available sufficient equal financial security in the country attests potential for its economic development, which ultimately allows to provide stable financial basis for financing measures aimed at increasing equal defense capabilities of the country, its national security. This is precisely the role of financial security. Security and this causes importance of implementation events for its increase within the national economy. Actually all state institutions are involved in this process today because financial security of the country is an integral component of stable functioning of the financial system and, accordingly, the basis for stable development of relations between economic entities and financial institutions. Provision of financial security to the country is a strategic task for legislative authorities, executive power, which execution requires systematic, continuous approach to implementation of a number of measures, which introduction gives opportunity to build stable functioning of the financial system. This in turn contributes to formation of financial resources for implementation of political, social events, projects and support stable national economy.

If we consider financial security as an integral component of the functioning of financial systems of the country, as a characteristic that describes the state of this system, its current state of development, then it is possible to claim that the financial system is the foundation of financial security, that is determines its level. Within these systems are happening processes that together form necessary level of financial security in the state.

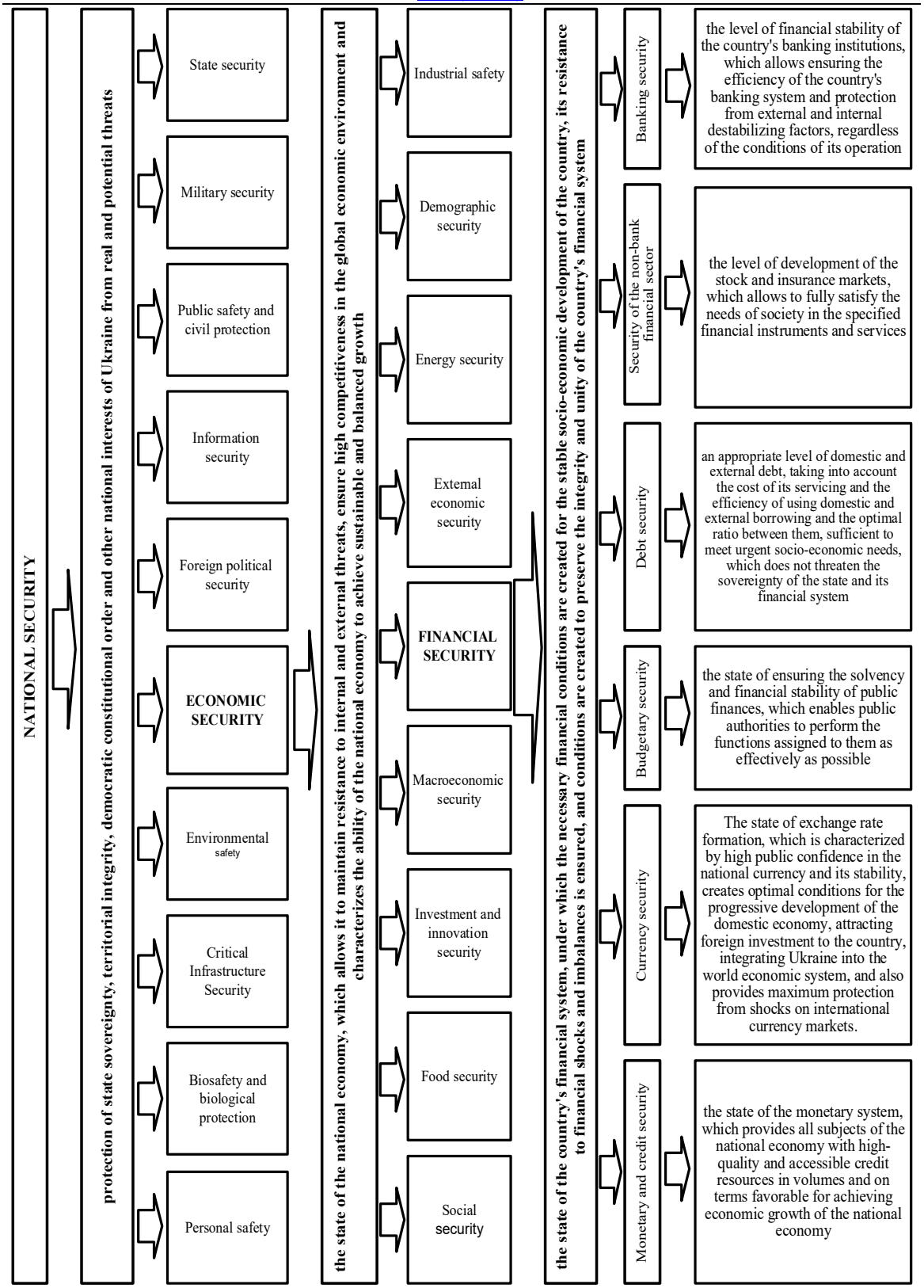


Figure 1: System Diagram Of The National Safety And Place Of Financial Safety In Its Structure
Source: Compiled By The Authors Based On [1; 29]

Financial system and financial security are related between themselves ontologically, that is emergence of crises at work of the financial system clearly affects indicators of financial security of countries. That is why to ensure proper equal security it is necessary to form conditions, first, for stable development of the financial system, its capabilities counteract external and internal threats. Within these systems financial relationship between economic subjects are formed and developed without exception. Accordingly, we can state that these features are interconnection between financial system and financial security system of countries:

1) financial system is the basis for formation of proper equal financial security of countries, because exactly stable functioning of the financial system primarily has a positive effect on increasing its security;

2) available financial security, on the one hand of parties, a characteristic of a certain state of the financial system at a specific moment, which certifies as far as financial system, which develops stable and has potential counteraction, that are unfavorable, sometimes sudden, impacts of destructive external and internal factors;

3) within financial systems is happening processes that affect significantly formation of equal financial security, namely:

– redistribution of financial resources between economic subjects takes place, and therefore increases efficiency of their use, which has a positive effect on stability of financial systems;

– transformations of temporarily free resources of economic entities in investment, credit funds take palce that are important from the position of the national economy development, formation of stable financial situation and foundations for this development;

– available support of stable functioning of financial institutions, individual systems that are carried out by state-owned institutions and directly affects stable functioning of financial systems;

–possible formation of financial resources of state institutions that will later are used to provide development of social systems that allows minimize emergence of crisis phenomena in their functioning;

– redistribution risks that arise within these systems, as a result of interactions between economic subjects regarding the use of financial resources, protection of their financial assets, which has a positive impact on stable financial systems, and therefore the financial security level of countries, etc.

Therefore, we can claim that financial security of countries are a characteristic of the results of the functioning of the financial system that displays the security level of its from external, internal destructive factors, state of balance of its basic components. Considering this, let's consider in more details the essence of financial systems and features of its digital transformations in modern conditions.

The issue of researching the content of financial systems in modern conditions have been studied extensively in many scientific works. In general financial system are adopted to be considered as a system consisting of aggregates of interconnected components, elements, which functioning provides for formation, distribution, redistribution, use of financial resources of the main economic entities within the national economy. Among components of financial systems the beloes mentioned are singled out, including: system of public finance, system of international finance, financial system of households, finances management of the subjects of non-governmental forms of property and financial market. The structure of the system is presented in Fig. 2.

Of course, the structure of the financial system is outlined in Fig. 2, where the system is conditional, however it reflects main spheres, subsystems in which specific, distinctive from other, financial relations between economic subjects can arise. It is quite difficult to distinguish among all subsystems of financial systems more or less important for its development components, because exactly effective interaction between the outlined elements by these components provides stable development of financial systems. Reduction pace of development or emergence of crises in the functioning of any of them will immediately affect development of other components of financial systems and ultimately will lead to deterioration in its functioning. This in turn will also affect the level of financial security of countries. The outlined processes in modern conditions are quickly enough extended within both financial systems, and in general national economy, and can form even threatening situations and consequences for overall functioning of the national economy.

Analyzing Fig. 2, financial structure systems, you can state that the presented structure is generalized for all types of the national econome. Some of them may have their own specific features that are determined primarily by high-level functioning of financial systems or vice versa, low-level development of financial relations in the country, as a result, separate components of these systems are

simply missing or their development is insignificant. At the same time, in each of the countries presented the main components can evolve differently. In some countries, more important role in the economy development is plaid by the role in the system of public finance, in other countries – by the financial market, etc.

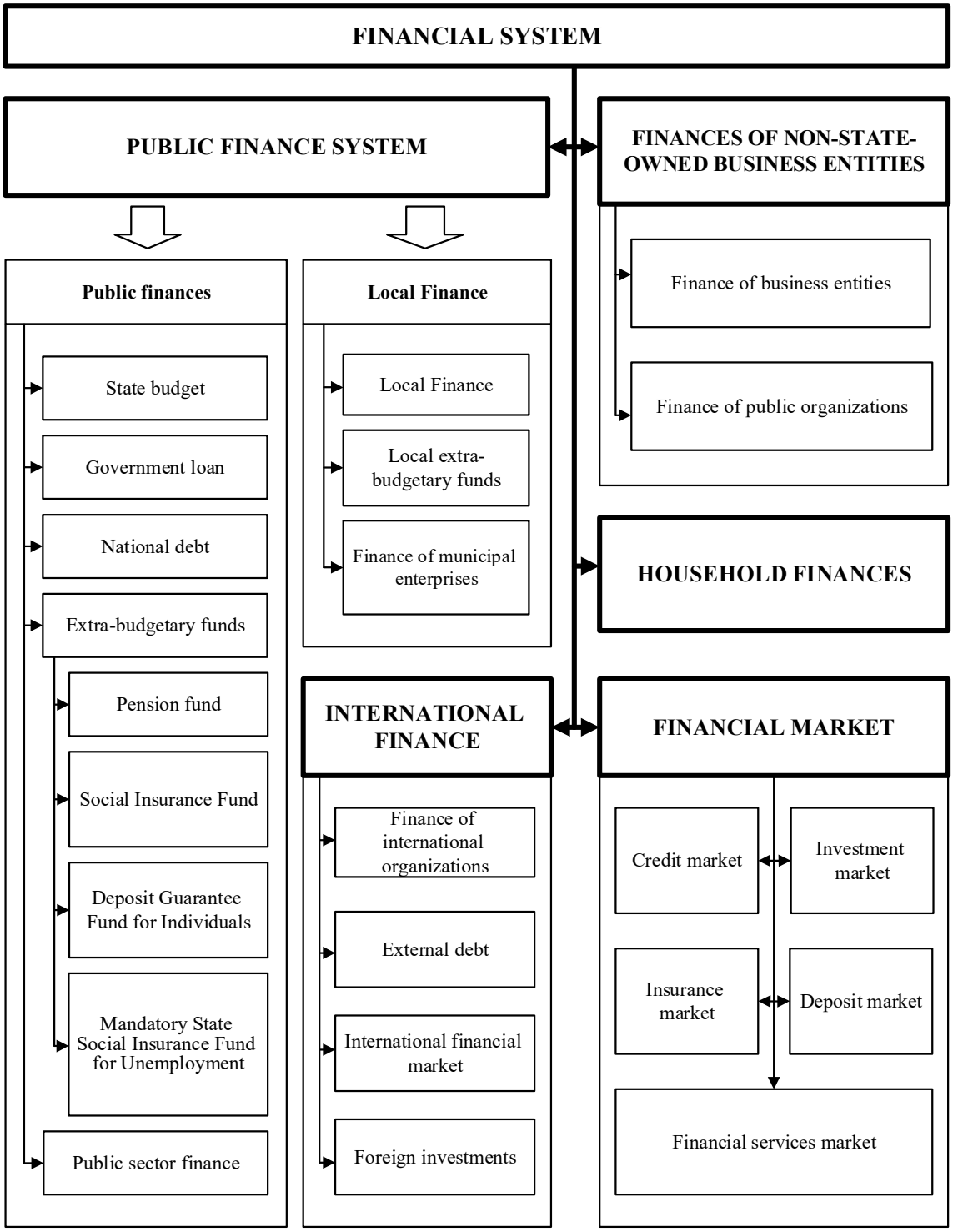


Figure 2: Diagram of financial systems

Source: constructed by the authors

In general, main characteristics of financial systems, usually within a country are forming gradually, taking into account historical experience of the economy development, development of certain mental features that inherent the nation, society. It is possible to single out totality of factors or formation of prerequisite of financial systems in the countries (Fig. 3).

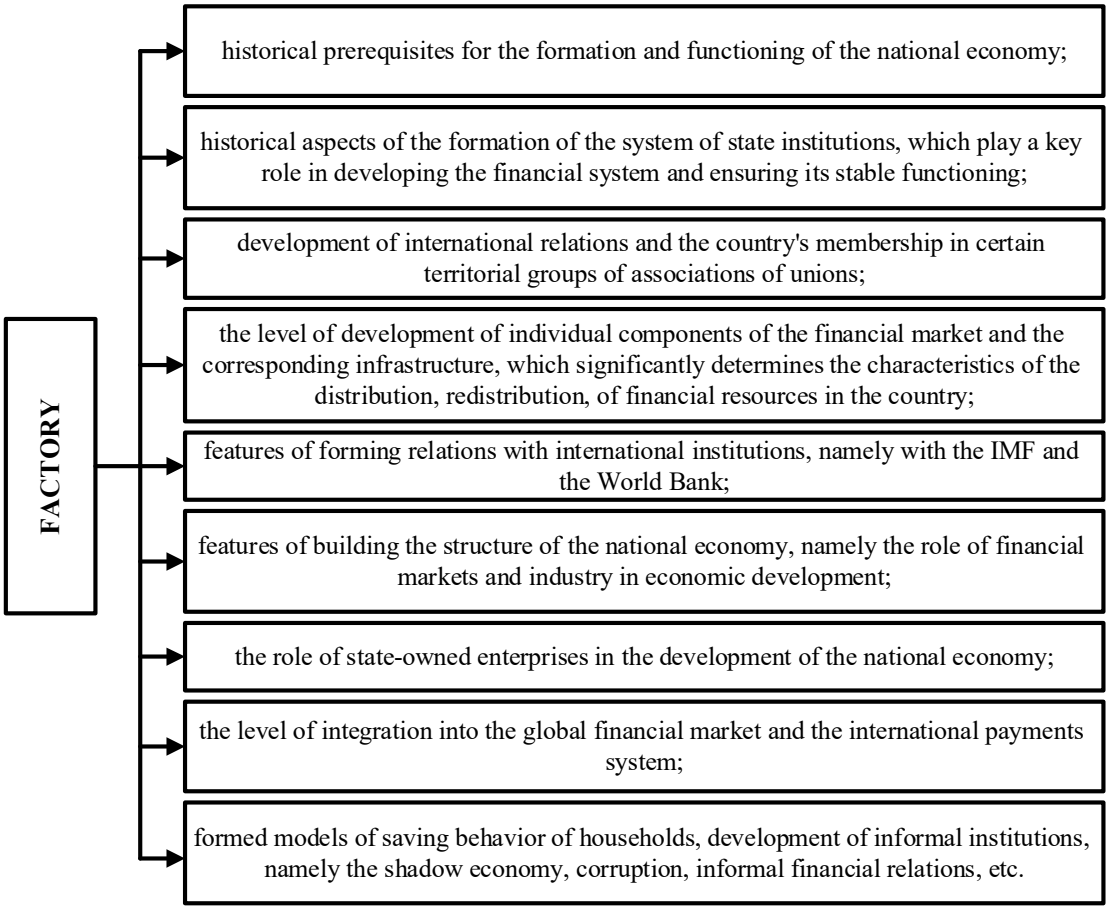


Figure 3: Prerequisites of formation of financial systems in the countries
Source: constructed by the authors

In modern conditions, financial system of every country without exception changes, is also formed as a result of the influence of digital technologies, except other factors that constantly carry out the impact on functioning of these systems. Today, digital technology penetrates into every subsystem of financial systems, changing the format of financial relationship, mechanism of interactions between economic subjects, accelerating circulation of financial resources, their more rational use, etc. Digital technologies, as a number of studies show, have significant potential for use within financial systems of different economic subjects, and therefore in the future will develop and it will be used more actively.

Let's consider in more details the essence of digitalization as deep transformations within the national economics and features of its impact on the functioning of modern models of financial systems. Firs, let 's analyze how digitalization today changes established models functioning, Second, in our opinion, systems public finance and financial market are important from the position of development and stable functioning of components of financial systems. In the article we will spend detailed research of transformations of the outlined components as a result of active use of the digital technologies.

Digital technology today penetrate into every spheres of society. They are already used in operation of all components of financial systems, because they have considerable potential for positive changes that occur due to their correct and effective use. However, the focus of attention is just on studying of the issues of digital transformations, systems of public finance and the financial market, because precisely within these components are forming main prerequisites for ensuring stable

functioning in general financial systems and accordingly formation equal financial security countries.

Digitization is a process of active use of potential digital technologies in various spheres of society, directions of economic activities. Opportunities of digitalization for these areas and spheres are different, because are conditioned specifically in their functioning, expedient application of different types of digital technologies to ensure their stable work. In general, digitalization has already led to the emergence and significant development of a new type of economy – the digital one, within which exactly digital technologies play back the key role in transformation of the main economic processes, including production, distribution, exchange and consumption.

Results of the DET surveys predict that in 2025 digital economy will grow three times faster than the world economy overall – by 8.5% compared to 2.7%.6 Based on this forecast, it is expected that digital economy will reach approximately 24 trillion US dollars in value in 2025, which will account for 21% of the global GDP [29]. Accordingly, Fig. 5 reflects the position of experts regarding changes that digital technologies create in the modern economic world (Fig. 4).

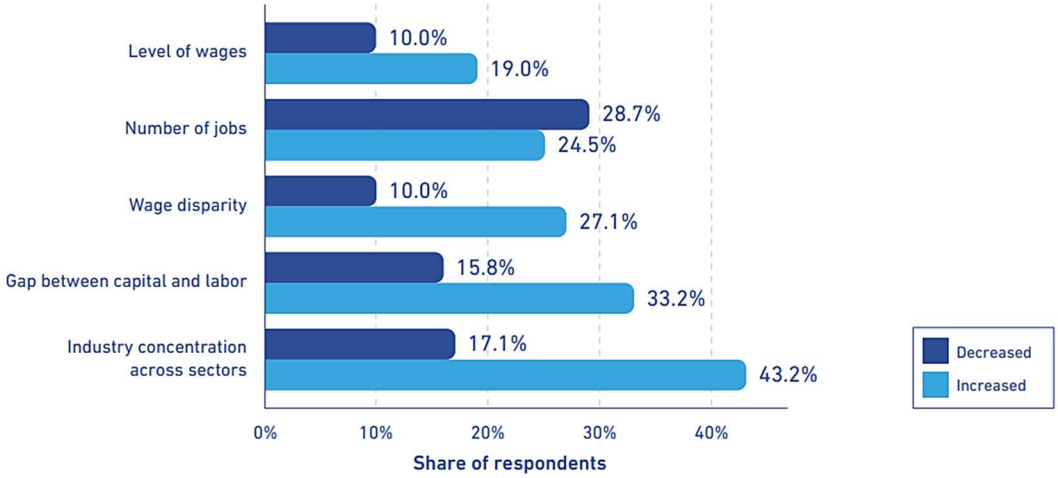


Figure 4: Results of digitalization of the national economy

Source: [29]

When asked how things will change digital economy for next 3-5 years, 41% of respondents are waiting better access to goods and services, and 30% emphasize greater accessibility for goods and services. However, 43% expect strengthening concentration in the industry, which maybe lead to the market dominance and a decrease competition, while 33% expect magnification rupture between income from capital and labor, indicating concern of the potential stagnation of the salary, which can blow up the economic situation [29]. At the same time, insignificant part of experts are waiting the growth of the salary. However, 28.7% of respondents think that number of working places will be reduced.

It is today, that digital technology already plays back an objective role in development and financial systems of countries and individuals its components. This related to the fact that this technology forms new impulses for development of economic subjects, components of financial systems, and at the same time allows providing receiving positive effects from application of thechnologies technologies in the long-term perspective. Using digital technologies is determined by formation of both positive and negative consequences for the functioning of economic subjects and not always is happening successfully and effectively. However, significant number examples of application of these technologies in the functioning subjects of entrepreneurship, government bodies, financial institutions, only attest considerable level of prospects and lack of alternatives of their use. Process digitalization inherent the following features (Fig. 5).

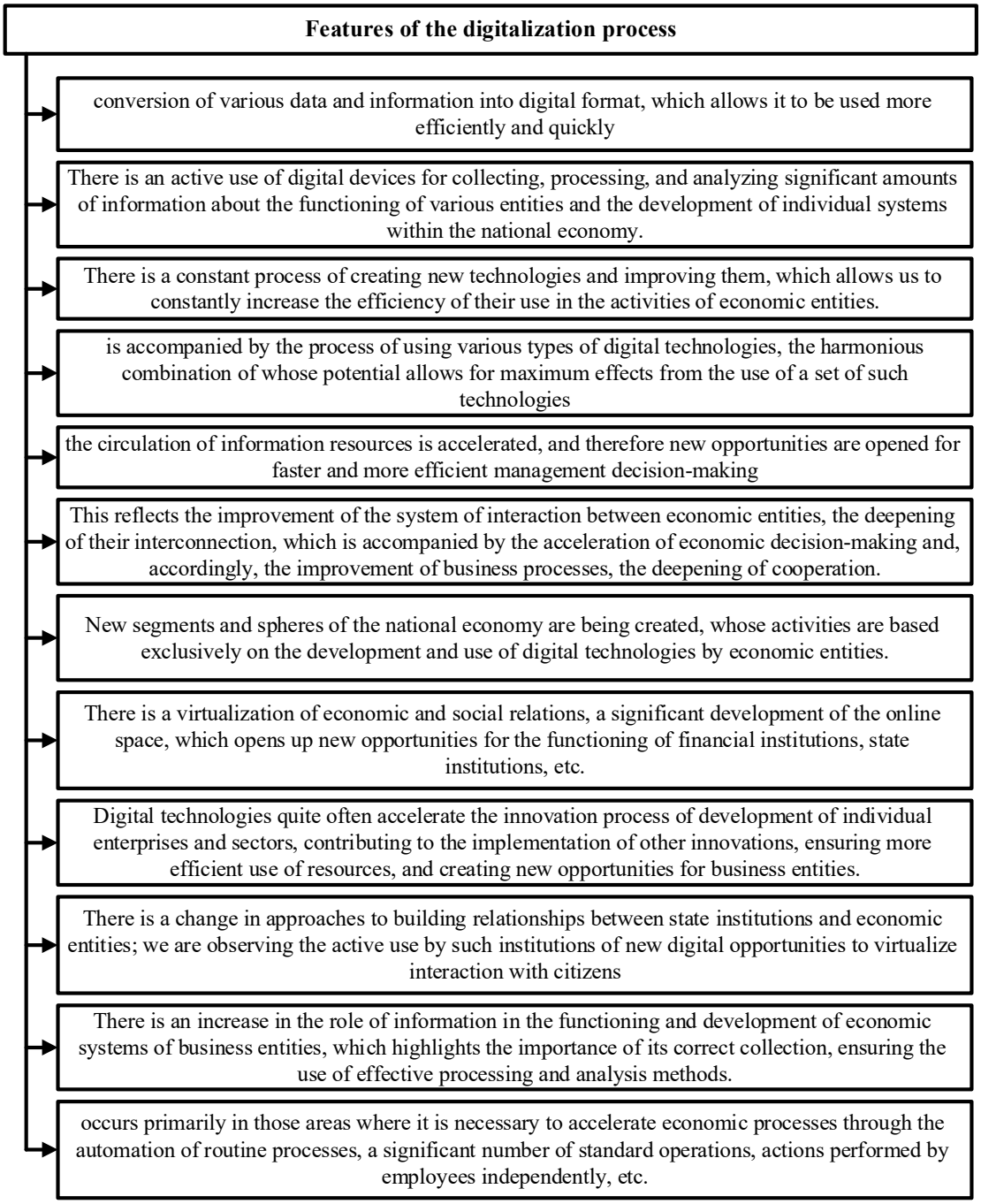


Figure 5: Features of the digitalization process

Source: compiled by the authors

Exploring specificity of digital transformations of financial systems and its individual components, cannot state available significant prerequisite in functioning of these systems that only contribute and deepen the role of digital technologies in its modern development. Among these prerequisite it is worth singling out the following :

– available significant quantities of information about financial state economic subjects, functioning of individual components of financial systems, which volumes constantly increases, and careful and qualitative analysis are important for positions adoption for effective solutions of using financial resources;

– available potential application of digital technologies for receiving additional results for the functioning of economic subjects that in summary

allows them increase financial results of own activities;

– using digital technologies allows, with proper use, minimizing fraudulent actions of the subjects management when using financial resources;

– opportunity to increase quality by granting financial services by creating a completely new approach to service customers of financial institutions, namely creation of virtual space for interacting with them, using which is useful for both customers and opens up new opportunities for them possibilities in use of financial services, and these institutions, allowing to attract new customers, change the format of own activities, to reduce expenses of operating rooms;

– active development of digital economy in the world, new areas, directions of economic activities that are related to development, use of digital technologies, which ultimately requires development as well as relevant financial relationships;

– available significant investment resources in financial institutions that were spent by them on development of digital products for own development, provision of own transformations as a result of active use of digital technologies, which ultimately spread to others spheres, industries of the national economy;

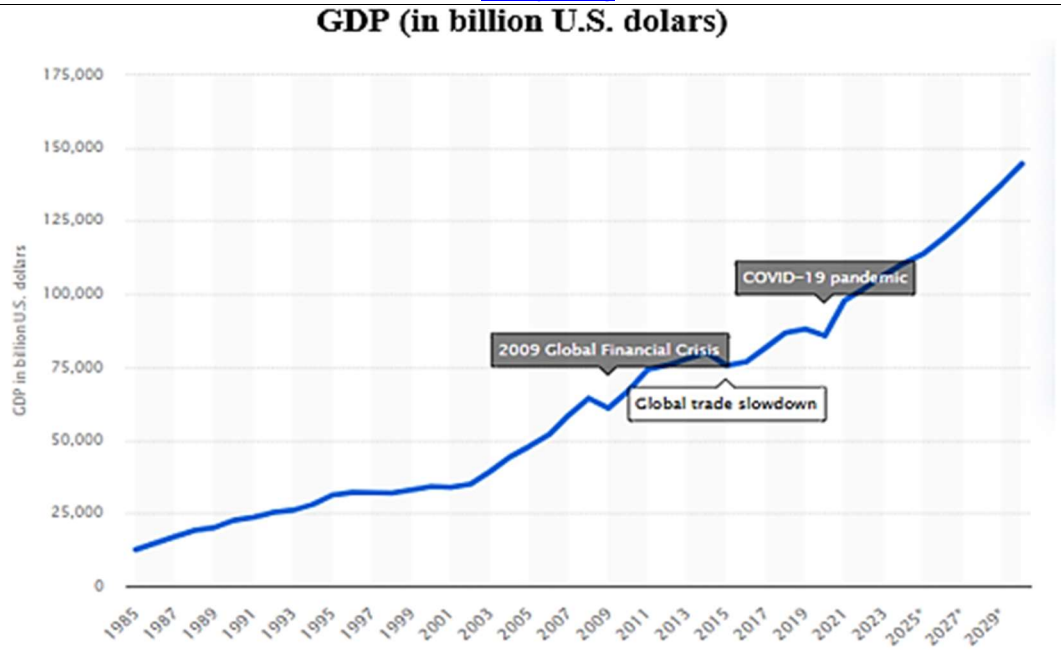
– deepening international cooperation, globalization of development of financial markets, formation of demand for fast international payments, which contributed to emergence of both new financial companies and created new challenges for financial institutions, etc.

We'd also like to that a significant incentive for active digital transformations was Covid -19 pandemich which has only accelerated this process. At the same time, active using of digital technologies happened even before the pandemic. But exactly after 2019-2020 this process received new impetus for active development and state institutions, and especially financial institutions, are still began to create more deeply and actively new financial digital products and ensure the highest possible virtualization of own work.

Global pandemic coronavirus COVID -19 has had a serious negative impact on the world economy. During 2020, the total gross domestic product (GDP) world fell by 3.4 percent. For comparison, world GDP reached 84.9 trillion US dollars in 2020, which means that fall economic growth of 3.4 percent leads to loss of economic production worth over two trillion US dollars. However, the world economy quickly recovered from the initial shock, reaching positive levels again growth in 2021. That year it reached 96.3 trillion USD, and it is expected to continue to grow in coming years, although the war in Russia in Ukraine from February 2022 and its impact on the world economy can prevent economic crises. Nevertheless, the world GDP grew more than three percent in 2022 (Fig. 6) [30].

From the data in Fig. 6, we can conclude that both financial and economic crisis of 2007-2008 and the period of the Corona crisis had a rather negative impact on development of the financial system and the global economy in general. However, the data also show that in general, recovery took place later and we can observe a positive trend in development of this economy in the long-term. The forecasting results, which are also presented in Fig. 6, confirm this. We'd also like to note that in 2019-2022 during the COVID -19 pandemic effective use of digital technologies contributed to faster recovery of the global economy and enabled a significant number of companies to survive during this period and not go bankrupt.

The COVID -19 pandemic has become a significant impetus for virtualization of economic relations, which has affected both economic behavior of households and business entities. Digital technologies have become widely used in the work of enterprises in various sectors of the national economy. They have become especially popular in organizing the work that can be transferred to a virtual form. To a large extent, this has enabled companies to reduce costs, support their own employees, and at the same time accelerate their own innovative development.



Global Gross Domestic Product (GDP) Per Capita From 2014 To 2024, At Current Prices (In US Dollars)

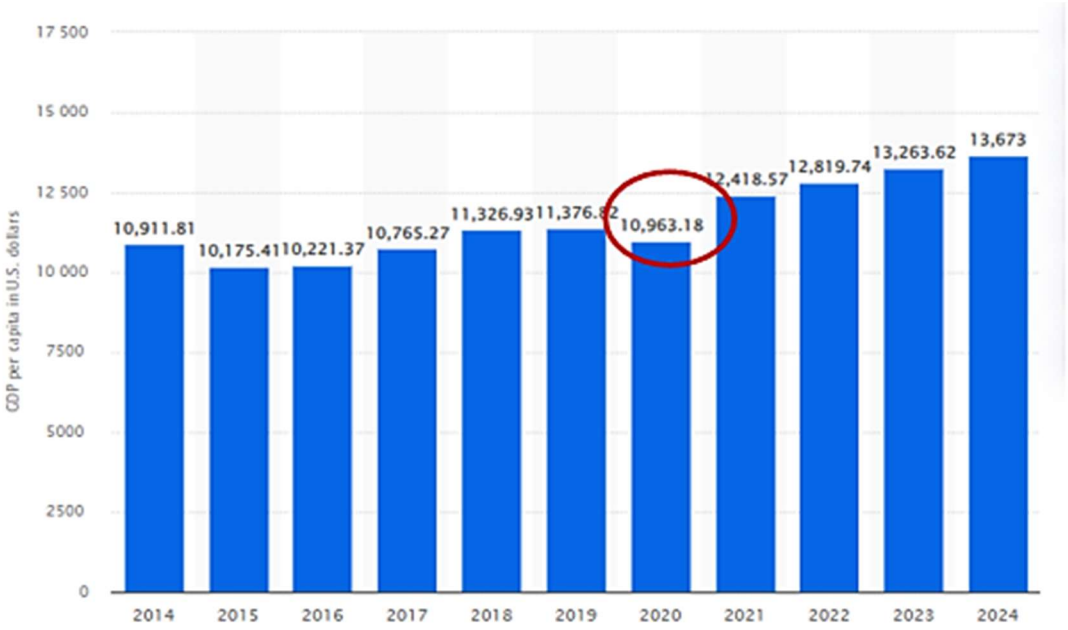


Figure 6: GDP

Source: [31]

Digitalization of all components of modern society without exception has led to a change in the model of interaction between economic entities, including interaction with state institutions. A significant number of business entities today actively use the online space to do business, receive education, interact with friends, etc. This is confirmed by the data in Fig. 7.

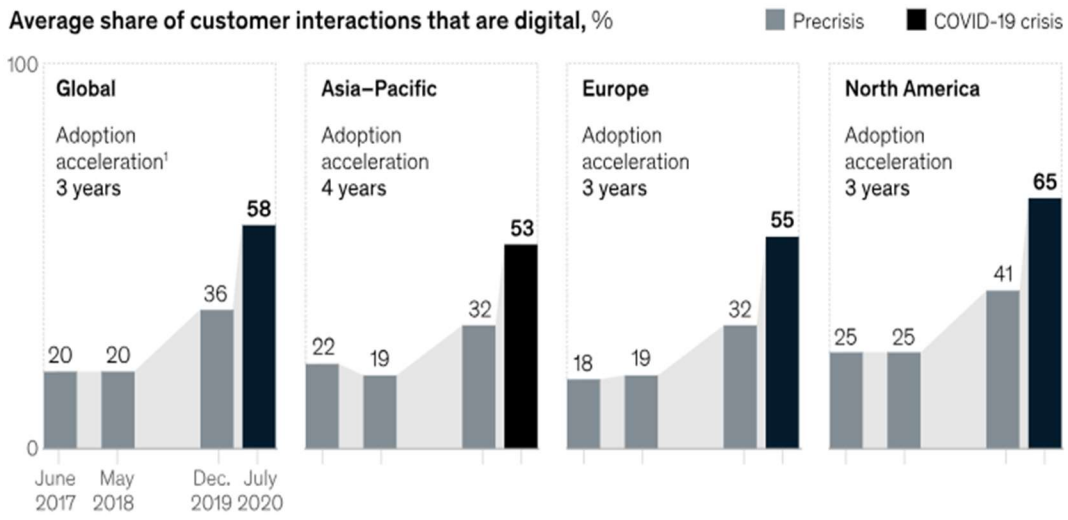


Figure 7: GDP

Source: [32]

Thus, taking into account the data in Fig. 7, we can conclude that digitalization is now a basic trend in development of both economic entities and government bodies, which undoubtedly ultimately affects the functioning of the financial system of any modern developed country. At the same time, both these bodies and other economic entities are trying to virtualize relations with each other today, to increase the level of contactless interaction. This process is objective, one that is already difficult to influence today, and therefore requires regulation by the state, which is quite important from the point of view of forming the country's national security and ensuring stable economic development.

Let's move on. Now, let's consider features of the functioning of public finances systems, its role in providing national safety and features of digitalization in modern conditions.

Undoubtedly, the public finance system is one of the most important components of the financial system, because within its boundaries relationship between economic subjects regarding distribution, redistribution financial resources that necessary for execution state-owned institutions functions assigned to them are formed. Fig. 8 presents data on the ratio of state spending and GDP in EU countries.

Accordingly, the data in Fig. 8 only confirm importance of the functioning of the public finance system, and therefore of the processes that occur in it, for ensuring stable functioning of the financial system and, of course, the national economy. This is especially important for countries such as Finland, France, Austria, Belgium, Italy, where public spending accounts for more than 50% of GDP.

Functioning of the public finance system is also important from the point of view of the state's implementation of the social policy, since within its framework there is an accumulation of funds of economic entities through tax, non-tax instruments, with subsequent distribution of these resources among various groups of the population, including citizens who are socially vulnerable and in need of assistance. These resources are also used to support functioning of the state's social infrastructure in general, including educational, healthcare, cultural institutions, etc.

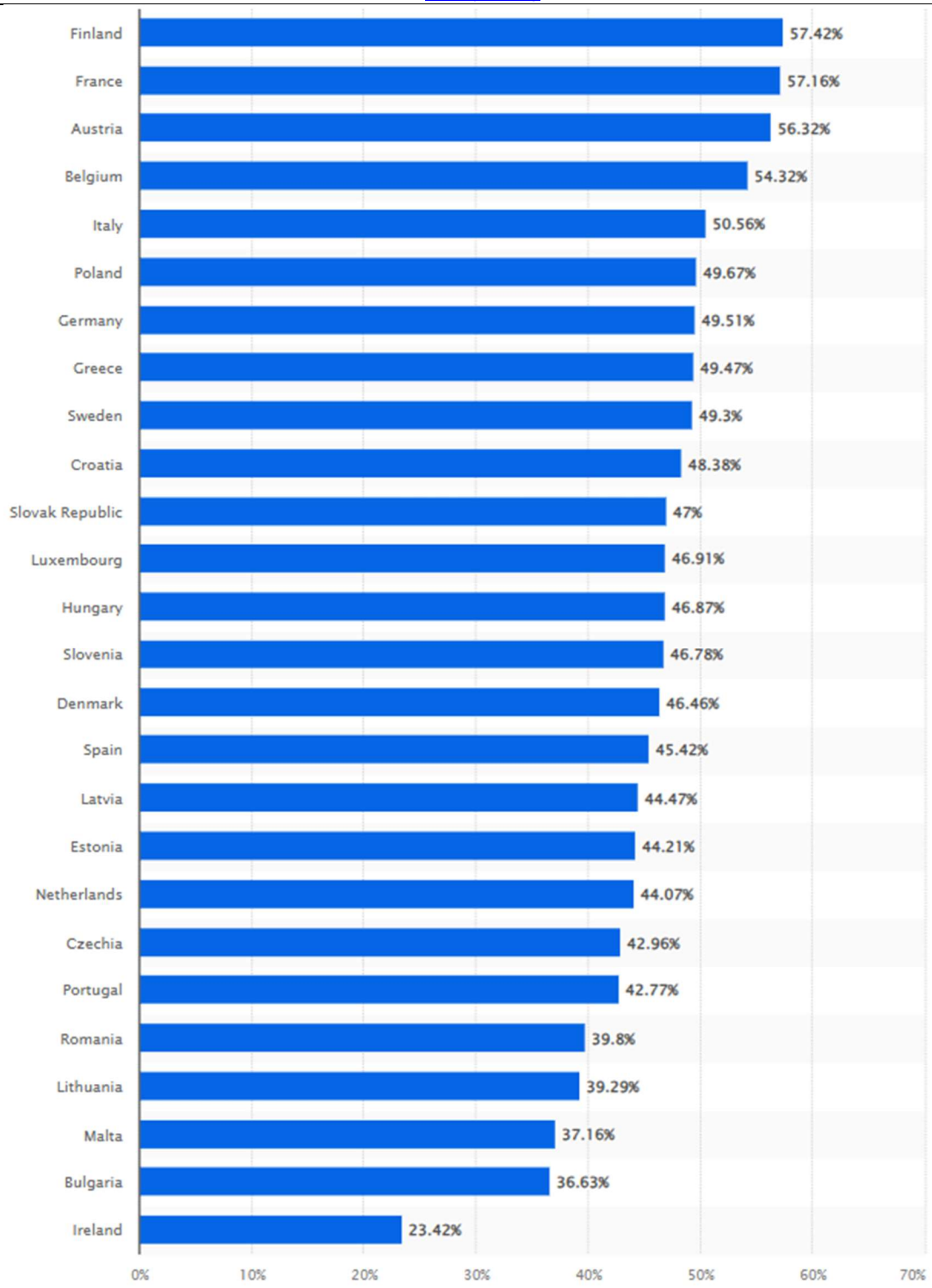


Figure 8: Public spending ratio in the member states of the European Union in 2024
Source: [33]

For example, in France in 2024, more than 30.0% of GDP was social spending. In recent years, this indicator has decreased slightly after a significant increase in 2020, which is associated with the fight against consequences of Covid -19. However, this share remains high and it is clear that without such

spending in the country, the level of social security will significantly deteriorate (Fig. 9).

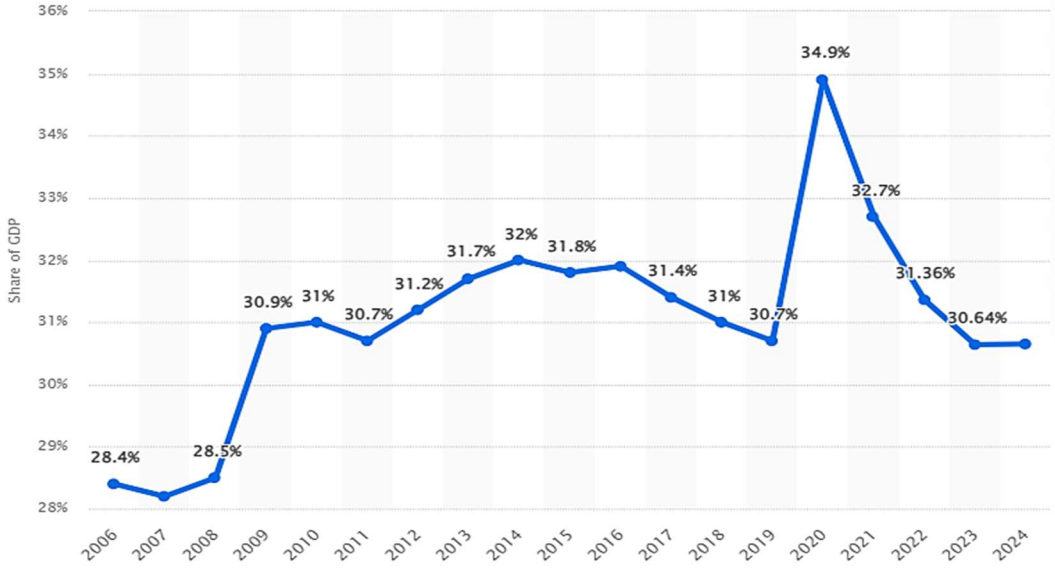


Figure 9: Annual Social Spending As A Share Of Gross Domestic Product (GDP) In France From 2006 To 2024

Source: [34]

Among public finances systems in provision of the national security there are important systems because with one sides this system gives opportunity to provide social safety in the country, which is an integral component of economic security, it creates conditions to increase equal in including foreign economic security, investment, innovation safety, environmental safety. For software these species of security are necessary because there are resources that not always can be involved from private investors, and can be given only bodies of state government, local municipality to implement different projects that are directed on support and increase the specified above species of security.

In public finances systems, formation of financial resources takes place that make up the base for financing defense, law enforcement bodies, state institutions that are functioning with purpose of the software for military, civil security and civilian protection, information security. Also in this system, as it was noted, funds are being formed that are heading on financing social programs, support functioning of social areas that gives opportunity reduce level of social voltage in society, that by ourselves provide internal safety of states, create conditions for build-up human potential that in summary positively affects economic development of countries and they are important with positions of increase of demographic security in the country, social security, macroeconomic security.

Public finances systems allow promptly state institutions respond on new internal, external threats, which solutions require enough fast intervention, implementation of financing measures that are directed on overcoming these threats. This system gives opportunity to create conditions for development of state enterprises that often perform the monopoly role and they are irreplaceable, and therefore are important for software production of the economic and national security of countries.

Effective functioning of software of public finances systems gives opportunity to build effective system management of external debt and that is to promote increase economic security in countries, reduction of its dependencies from external financing, obtaining loans from international institutes and etc.

Public finances systems are integral components of the software of national security of countries because there financial resource for support actually all state institutions that are involved to software this safety is being formed. Accordingly, software effective functioning of these system is one of the most complex tasks for these institutions, because the system itself is complex, covering significant number of different financial relationships that arise between economic subjects. Today this system is

actively changing in accordance with new opportunities of digital technologies. Let's consider in more details positive and negative consequences of digitalization systems of public finances (Fig. 10).

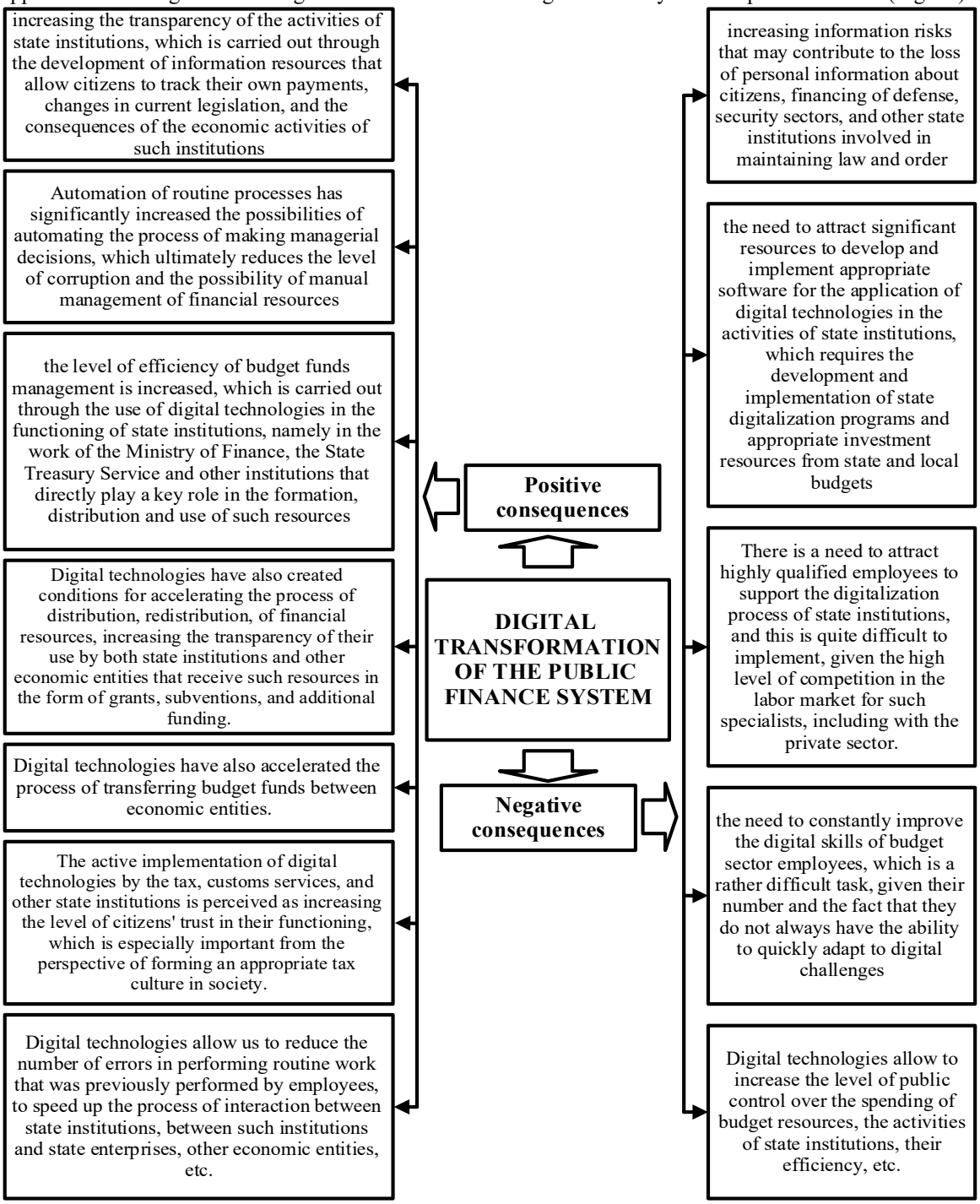


Figure 10: Positive And Negative Consequences Of Digital Transformations Of Public Finances Systems
Source: Compiled By The Authors

Financial market is an integral component of the functioning of any financial systems. In the preferred majority of cases stable functioning is one of the main, if not the main, condition for stable functioning of financial systems. History certifies that most often the crises, including financial ones, which subsequently had a destructive effect on economic development of countries, emerged in the

financial market and quickly spread to others economic entities, financial institutions, which ultimately negatively affected the functioning of other components of these systems and especially public finance systems. Accordingly, it confirms importance of the financial market in providing financial security of the country, and, accordingly, its national security.

Financial market is a system within which economic subjects, institutions are functioning, between which financial relationships in buying and selling financial assets using a significant range of financial instruments are happening. Within the financial market, there is also mobilization, distribution, redistribution of financial resources between its main participants, namely households, entities of entrepreneurial activities, government authorities.

In Fig. 11 pre-cast of the main characteristic traits of the functioning of the financial market as a separate integral system of financial relationships is presented. Above the main ones, components of the financial market, which are distinguished, primarily, based on the analysis of those financial tools that are used to attract financial resources of the subjects of management, were presented. Within each of these components, formation of financial resources between economic subjects and circulation funds from one to another, which ultimately allows each of these entities to satisfy own needs for specific types of financial services, takes place.

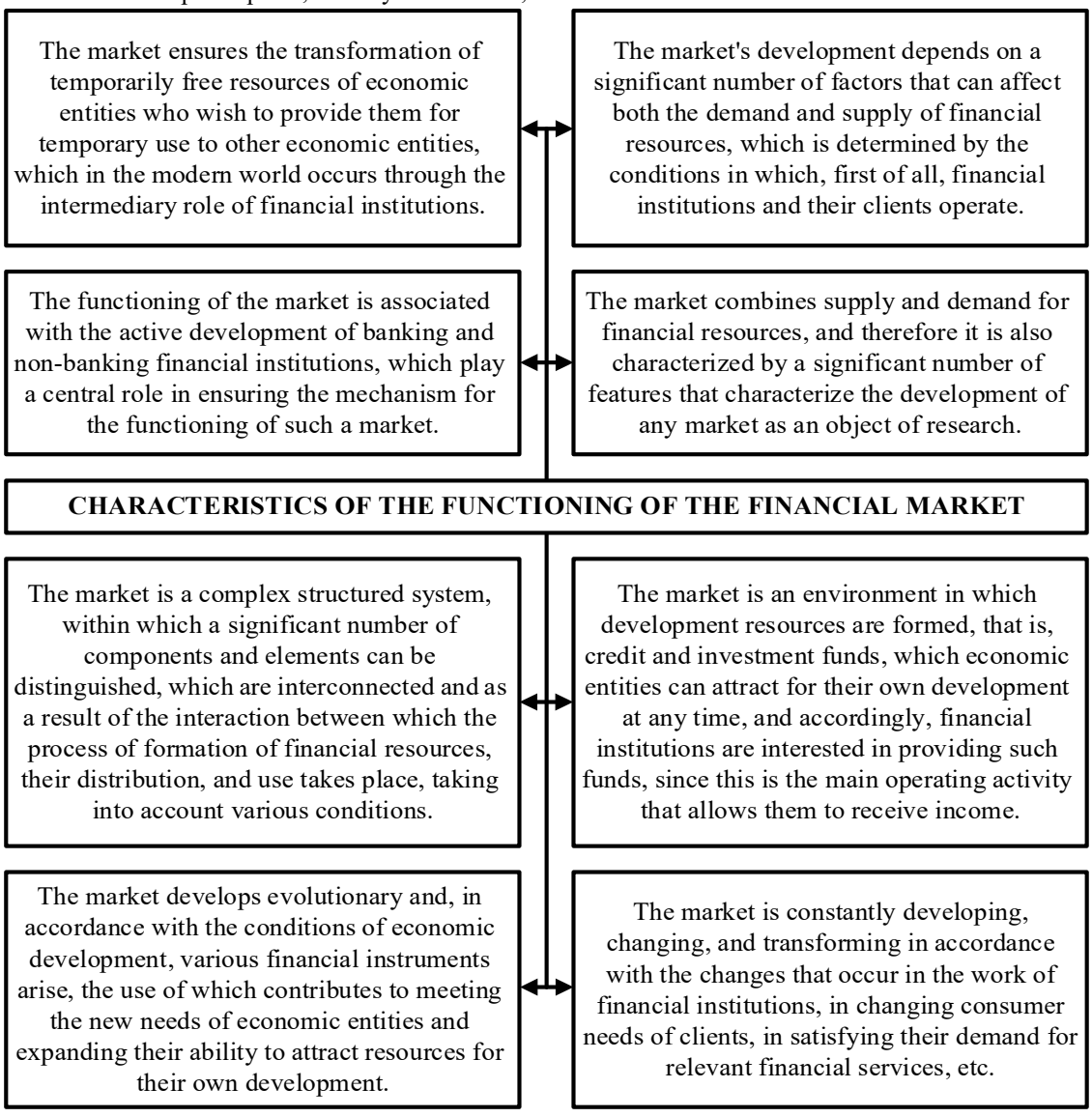


Figure 11: Basic characteristic traits of the financial market functioning as a separate integral system
Source: compiled by the authors

In provision of financial security of countries, respectively its national security, the financial market plays key role. First, this market affects formation of financial security through provision of banking security, safety non-banking financial sector, foreign exchange security, monetary security. This in turn affects formation of both economic security countries.

The role of the financial market in shaping proper equal national security consists of the following:

– financial market contributes for creating conditions for stable functioning of financial systems, and, accordingly national economy, which affects the macroeconomic safety of countries;

– financial market maybe be used by state institutions to attract funds of economic entities through the market valuable papers, functioning of state banks, which ultimately expands opportunities of the state in financing events on defense, security of countries;

– financial market contributes for more effective use of available financial resources, because through the market mechanism is happening the process of more rational use of economic subjects of the resources they have attracted;

– financial market may become a system in which complex security threats of countries are being formed, and accordingly ensuring conditions for the functioning of this market as an integral part on prevention of these threats and minimization of their negative impact;

– financial market of countries is a component of the international financial market and that is why the crisis phenomena that arise in the world financial system, may negatively affect the financial market of countries to influence its economic development and accordingly the national security level;

– financial market is a space in which destructive factors and threats to the functioning of individual financial institutions arise, which ultimately may lead to formation of deep financial crises; this requires construction of effectively current systems of macroprodental supervision of banking activities and non-banking activities of financial institutions;

– financial market is a system in which illegal actions of of funds laundering and implementation of fraudulent actions with economic resources of entities can be carried out, which negatively affects stability of economic systems, functioning of financial systems. This in turn requires implementation of effective systems on regulation of this market, active prevention of financial institutions from shadowy operations, money laundering operations, financing terrorism.

– financial market may be used by state institutions for regulation of the growth of available credit, investment resources for economic subjects, regulation of acceptable equal inflation, national exchange rate of currencies, that are main macroeconomic indicators.

It is noted that in modern conditions exactly functioning of financial institutions is the largest influence of digital technologies. Significant advantages that these technologies form for the activity of these institutions only accelerate pace developments of new digital products, innovations for their implementation to obtain yet more the best results.

However, directly digital technologies, their implementation is also accompanied by both positive and negative aspects, which primarily are determined by the very nature of digital technology, specifics of its development, implementation, long - term support of the perspective.

Positive consequences of digitalization for the functioning of the financial market are presented in Fig. 12, and among negative consequences, the following can be identified:

–increase in the number of cyberattacks and cyberthreats to the functioning of financial institutions and economic entities in general, which may ultimately lead to emergence of complex situations in the functioning of the financial system;

–need for the increased investment by economic entities in forming their own information security system, taking into account their active use of digital technologies, as well as their use by fraudsters;

–dependence of financial institutions on the functioning of the technical infrastructure of the financial market is increasing, any problematic situations in functioning immediately affect the operation of banking and non-banking financial and credit institutions;

– growing dependence on qualifications of employees involved in implementation of digital technologies and construction of effective information security systems for economic entities;

– need for continuous training of employees in implementation of new digital product technologies that change established operational processes

– insufficient level of legal regulation of digitalization of the financial market, the use of various technologies in the work of financial institutions, establishment of responsibility for the loss of personal information about economic entities;

– emergence of new risks for financial companies that are related from using digital technologies, as well as emergence of new entities in the financial

market that are actively involved in providing financial services;

–use of digital technologies requires economic entities to have appropriate level of digital literacy, which is not always possessed by clients of financial institutions and their employees.

Thus, by analyzing theoretical and applied provisions of the digitalization of the financial system outlined above, we can determine consequences of the digital transformation of this system and its role in ensuring national securit of the country. Their totality is presented in Table 1.

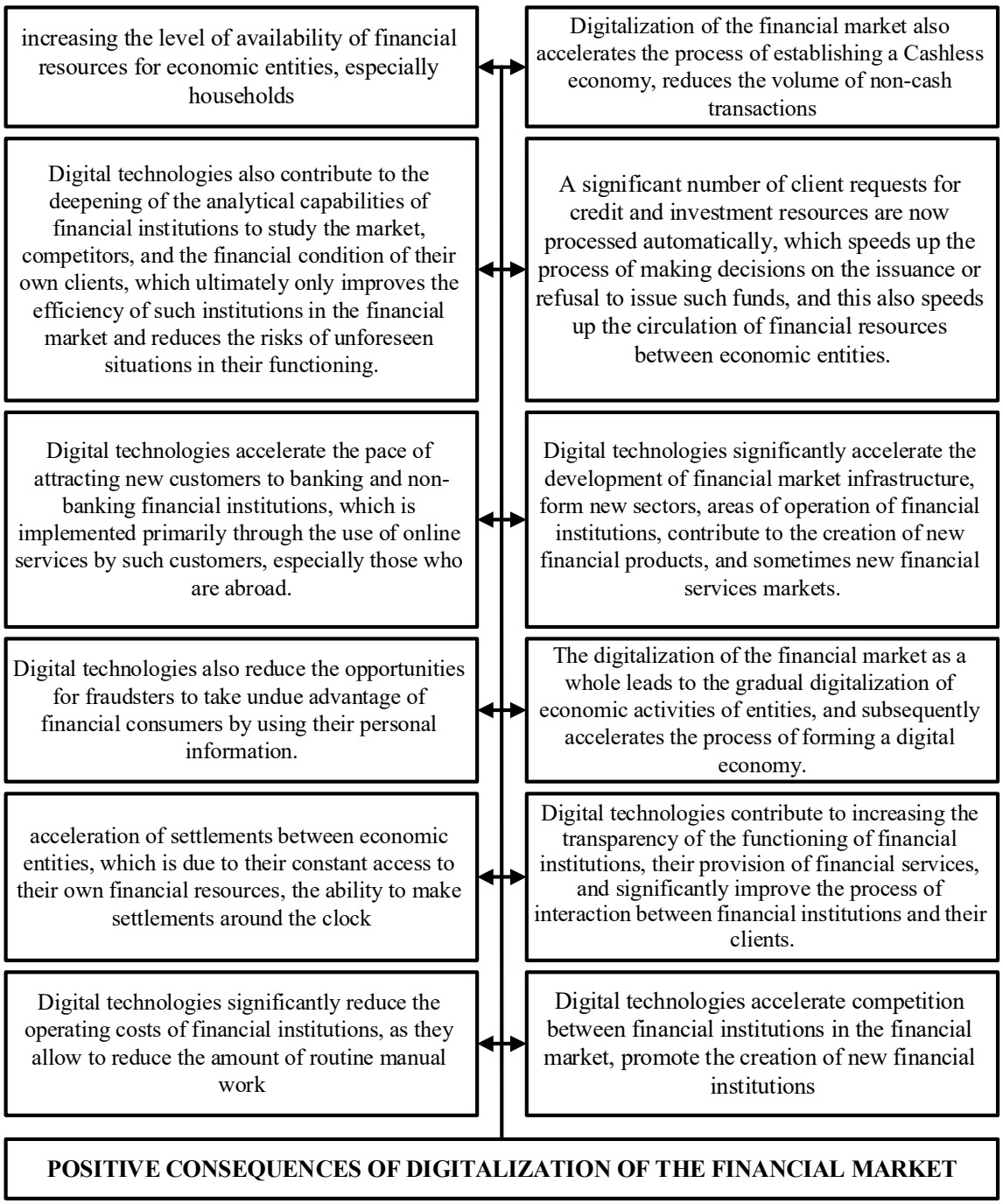


Figure 12: Positive consequences of digitalization of the financial market
Source: compiled by the authors

Table 1 – Constructive and destructive consequences of digitalization of financial systems to ensure national security

Positive consequences	Negative consequences
– increase stable functioning of the national economy through improvement approaches to management financial resources, creation of new tools, more effective processing of analytical information; – decrease of volumes of shadowy operations, because digital technology provide increased transparency of financial relationships; – growth of volumes of financial resources that involved state-owned institutions through increased transparency of income of economic subjects that in summary positively affects and on financing the army, defense, security sector; – proceedings of digital technologies contributes to digitalization of society, raising digital skills of citizens, owners of subjects of entrepreneurial activities that positively affects their relationships, speed calculations; – increase of opportunities of financial institutions to control financial streams of economic subjects, to detect doubtful or illegal operations that can be used for financing terrorism; – digital technology contributes for transformations of state institutions, increasing their stable functioning and transparent activities that positively affects on struggle with corruption; – digital technologies contribute for reduction of equal shadow economy, increasing transparent functioning of payment systems; – digital technologies also form conditions for creation of new sectors, directions of economic activities that directed on development, use of digital technologies in financial field that increases the level of informational security of the state, provides its innovative development; – digital technologies allow more quick and more efficient carrying out of regulatory politics in supervision by the activity financial institutions that significant in a way that increases stability of their works and appropriate level of financial security of countries; – active development of financial infrastructure only accelerates circulation by using financial resources, creates conditions for investments involvement.	– digital technologies require using significant investment resources for them use, purchase ready-made digital products that reduces financial opportunities economic entities to ensure further own development; – digital technologies significantly weaken informational safety of the states and require significant efforts and resources to build effective cyber defense systems, and this also requires significant financial resources; – digital technologies can raise dependence from foreign financial companies, IT companies in developments of modern digital solutions and products for them use in activities of state institutions, economic subjects; – proceedings of digital technologies also requires implementation of systemic state politicians to increase digital literacy of citizens, development of relevant digital infrastructure that would allow to provide high quality digital services and use potential of digital technologies; – speed development of digital technologies are not always comparable to legal regulations of their use, which ultimately can negatively affect the economic activity of subjects, lead to losses due to unauthorized access to personal data, information about their financial condition.

Source: compiled by the authors

Thus, taking into account the results of the study, it can be argued that in the future the use of digital technologies in the world will only deepen. They will play an important role in the functioning of the financial system, including financial institutions. In general, this conclusion is confirmed by the survey of the heads of these institutions, their owners, and civil servants. For example, in 2024, the Digital Economy Trends Survey, the results of which are presented in Fig. 13.

The results of the survey indicate that, according to most experts, it is the financial sector that will benefit the most from digitalization in the future. This only confirms the high level of demand for new digital solutions by financial institutions to improve their activities and their willingness to invest significant resources in their own digital transformation. This situation, as experience shows, leads to an increase in the quality of services provided by financial institutions, emergence of new consumer habits among bank clients and non-bank institutions, who in the future expect state institutions to implement new digital technologies, maintain the same level of service and quality of use of digital technologies. Accordingly, governments of many countries today pay attention to the issues of digitalization of their own work, increasing the level of transparency in formation and spending of public funds, which are formed primarily from tax revenues.

Starting in 2018, digitalization finances continues accelerate at a significant pace. Investments in fintech companies in the period from 2019 to 2023. amounted to 865 billion US dollars – it more than twice more than the amount invested from 2013 to 2018. Development of artificial intelligence and machine learning, cloud computing, technology distributed registry, decentralized finance and various forms of cryptoassets have placed important question about their potential impact on banks, banking activities and supervision [35].

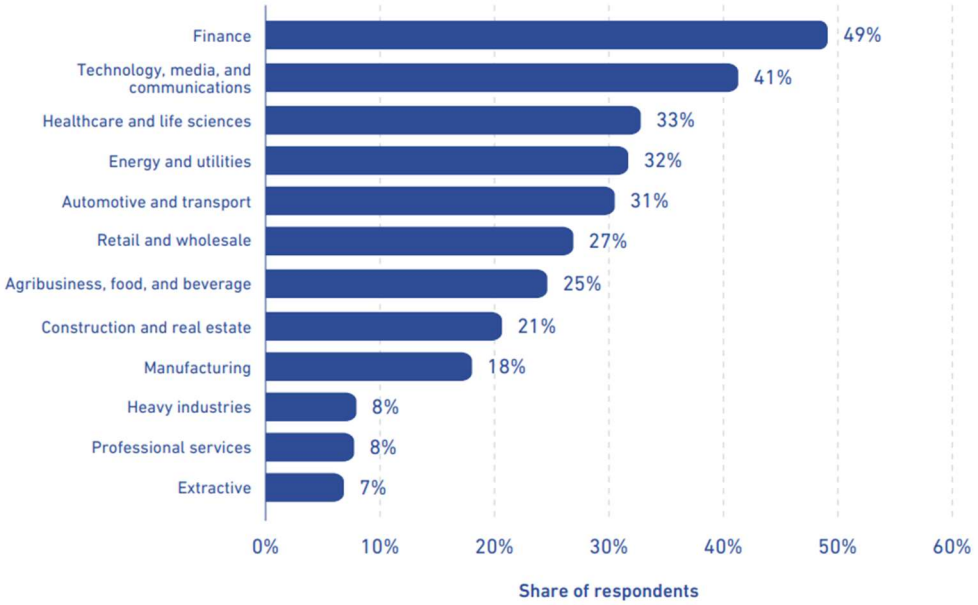


Figure 13: Industries most likely to benefit from the digital economy in the next 12-18 months Source: [29]

Accordingly, new challenges arise for governments today: how to ensure security of digital transformation, how to protect the rights of citizens, and ensure an appropriate level of their personal information security. The issue of regulating activities of financial institutions in terms of increasing their resilience to various types of cyber threats remains open and not fully studied. Cybersecurity is becoming an extremely important aspect of digital transformation, and since this transformation is taking place in virtually all areas of modern society today, the issue of building effective cyber defense systems is also becoming extremely important and needs to be resolved. This is again confirmed by the results of the survey of experts and statistical data. For example, according to Statista, in 2023 the average amount of financial losses due to data leakage in all sectors of the US economy was $9.48 million, which is the highest figure among countries in the world. In the financial sector, this indicator reached 5.9 million dollars, which allowed the industry to take second place in the world ranking according to the scale of averages losses due to leaks information [36].

Accordingly, the presented survey only confirms that, according to politicians, in modern conditions, the priority areas for governments in terms of the digitalization of society should primarily be as follows: enhancing data privacy and cybersecurity protections (59.3%). Also, according to politicians, important areas of work are as follows: supporting public and private funding / investment in digital infrastructure (46.3%), aligning regulations and standards on emerging digital economy areas (37.3%), creating policies that enhance inclusion, public trust, and well-being in the digital economy (32.2%) etc. (Fig. 14).

In general, maintaining an appropriate level of cybersecurity of activities of economic entities, especially those related to formation and use of public finances, financial resources of local governments, and having the ability to influence the stability of the banking system, allows creating a safe space for the work of these economic entities and thereby increasing the security level of the financial system, which ultimately affects formation of the national security of the state. At the same time, the potential of digital technologies in ensuring this security is currently insufficiently studied, and in the future, these technologies will be actively used in various spheres of society to prevent the negative impact of external and internal factors on stable development of economic, social, and political systems.

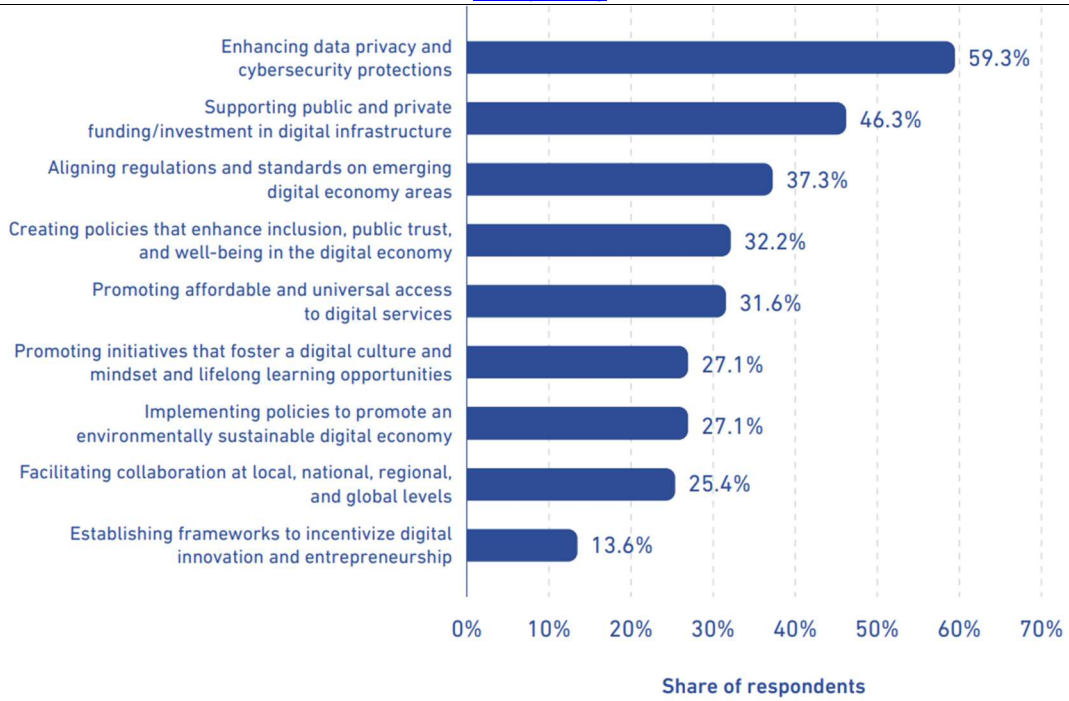


Figure 14: Policy priorities for governments according to policymakers

Source: [29]

The issue of using digital technologies for the development of the financial system, especially in the context of the presence of objective prerequisites for ensuring the national security of any country, is especially relevant for those countries that face complex challenges for economic, political, social systems.

Accordingly, further research in the direction of the topic of the article may consist of the following. This is a study of the impact of various types of cyber threats on the functioning of individual components of the financial system, including the public finance system, the financial market and other structural components of such a system. Also of interest are studies on the use of digital tools to strengthen information security systems that are used today by financial institutions, state authorities and individual business entities. In the theoretical plane, today there is a need to deepen knowledge about the peculiarities of coordinating the developed strategies for the digitalization of the national economy, and in many countries there are strategies for the digitalization of the financial system with strategic documents related to ensuring the national security of the country. There is also a need to develop methodological approaches to assessing the level of digitalization of the country's financial system, assessing the impact of the digital transformation of the specified system on the level of national security of the country, individual components and this type of security.

5. CONCLUSIONS

The article substantiates the impact of the process of digitalization of the financial system on the level of national security of the country. This is implemented through the study of theoretical, methodological provisions on the essence of the country's national security, the role of the financial system in ensuring this level of security and the description of the role of digital technologies in the modern development of the specified system.

In particular, the article examines the essence of financial security and its place in the component composition of the country's national security. The results obtained showed that financial security is a key element in the formation, primarily of the country's economic security, which plays a key role in forming the basis for ensuring national security. The article substantiates that the availability of financial resources, which primarily determines the level of financial security, is an important component for supporting all state institutions and organizations that are directly responsible for the country's security sphere, starting from military security and ending with supporting internal security.

In order to study in-depth the features of the process of digitalization of the financial system, an analysis of the essence of digitalization was conducted and the structure of the country's financial system was considered, within which the following components were identified: the public finance system, international finance, finances of non-state entities, household finances, financial market. Considerable attention was paid to specifying the prerequisites for the formation of the country's financial system, which made it possible to state the presence of differences between such systems in different countries. Accordingly, the process of digitalization of such systems also occurs differently, with national differences.

The article substantiates the leading role of the public finance system and the financial market in the overall development of the country's financial system. A detailed analysis of the impact of digital technologies on the functioning of these two components of the financial system was conducted. The positive and negative consequences of the digitalization of the public finance system were considered, which made it possible to identify the main threats that already exist in this area today, and are primarily due to the active use of digital technologies. Future new risks that will accompany the process of digital transformation of the public finance system are identified, among which the threats of cyberattacks are primarily identified and the importance of implementing comprehensive state programs to increase the level of cyber protection of state institutions is confirmed.

The article also examines the essence of the financial market as a separate component of the public finance system, identifies the characteristic features of the functioning of such a market as a separate integrated system. This ultimately allowed us to specify both the negative and positive consequences of the digitalization of the specified market. It is noted that financial institutions, which are integral institutional entities of the financial market, today play a key role in the processes of digitalization not only of the financial services sector, but also of the financial system and the national economy in general. Accordingly, it is established that, first of all, the threats of digitalization are formed precisely in the functioning of these institutions and can subsequently create systemic cyber threats to the functioning of the financial system.

The constructive and destructive consequences of the digitalization of the financial system and the impact of its digital transformation on the level of national security of the country were also determined. It was established that such a transformation in general creates a greater number of positive impulses for the development of financial relations in the country, the formation of conditions for economic development. This ultimately has a positive effect on the stability of the country's functioning, and therefore the level of its national security. However, digital transformation is also characterized by a significant number of negative consequences, some of which can have a destructive effect on the country's security, complicate the existence of other components of the national economic system and weaken the level of stability and resilience of the country's financial system to internal and external threats.

REFERENCES:

[1] Asia's rapid digitalisation may pose new financial risks, says BOJ chief Ueda. (2024). https://surli.cc/lagwue

[2] Pronko, L., Puzyrova, P., Sobchyshyn, V., Varava, L., Zakharov, D. (2025). Innovative management of labour potential in the digitalization system of financial and economic security of the smart economy. *Financial and Credit Activity: Problems of Theory and Practice*, *1*(60), 554–569. https://doi.org/10.55643/fcaptp.1.60.2025.4694

[3] Llazo, Edlira et al. (2024). Trends and Prospects of Financial System Development in the Context of Digitalization. *Theoretical and Practical Research in Economic Fields*, 15(4), 783-797. https://doi.org/10.14505/tpref.v15.4(32).01

[4] Li, Naijiao, Huang, Fei. (2024). Evaluating the financial returns on investment in sustainable enterprise digitalization initiatives using ai information system. *Journal of Internet Services and Information Security, 14*(4), 21-44. DOI: 10.58346/JISIS.2024.I4.002

[5] Tulchynska, S., Popelo, O., Solosich, O., Kasianova, N., Kostiunik, O., Shchepina, T. (2024). Artificial intellectualization in the assessment system of the safe development of economic entities. *Journal of Theoretical and Applied Information Technology*, 102(8), 3323-3334. https://www.jatit.org/volumes/Vol102No8/6Vol102No8.pdf

[6] Kartikasari, E.D., Zainuddin, S.A.B., Jamil, A.B. (2024). Transformation of Accounting Information Systems in the Management of BUMDesa Financial Performance in the Digitalization Era. In: Khamis, R., Buallay, A.

(eds) Board Diversity and Corporate Governance. CSR, Sustainability, Ethics & Governance. Springer, Cham. https://doi.org/10.1007/978-3-031-53877-3_42

[7] Desyatnyuk, O., Ptashchenko, O. (2024). Impact of digitalization on financial systems and services. 2024 *14th International Conference on Advanced Computer Information Technologies (ACIT)*. https://doi.org/10.1109/ACIT62333.2024.10712540

[8] Askarova, A.K., Abdyldaeva, U.M., Murzalieva, E.I., Zholboldueva, D.S., Abdyrakhmanova, G.B. (2024). Current Trends in the Development of the Financial and Credit System in the Context of Digitalization. In: Sergi, B.S., Popkova, E.G., Ostrovskaya, A.A., Chursin, A.A., Ragulina, Y.V. (eds) Ecological Footprint of the Modern Economy and the Ways to Reduce It. Advances in Science, Technology & Innovation. Springer, Cham. https://doi.org/10.1007/978-3-031-49711-7_37

[9] René W.H. van der Linden, Piotr Łasa. (2023). Financial Interdependence, Digitalization and Technological Rivalries. In *Perspectives on Future Cooperation and Integration in Sino-American Financial Systems* (IX, 175). Palgrave Macmillan Cham. https://doi.org/10.1007/978-3-031-27845-7

[10] Yu, Y. (2023). The Impact of Financial System on Carbon Intensity: From the Perspective of Digitalization. *Sustainability*, *15*(2), 1314. https://doi.org/10.3390/su15021314

[11] Alraggad, Mishael Mohammad, Almahasneh, Ali Abd Alah Ali, Borovikova, V., Zhyvko, Z., Komissarchuk, Yu. (2024). The policy of rethinking the criminal process in the national security system: The impact of digitalisation on working with electronic evidence. Social and Legal Studios, 7(2), 162-170. DOI: 10.32518/sals2.2024.162

[12] Abramova, A., Popelo, O., Fedyshyn, M., Popova, L., Shchur, R., Marych, M. (2024). Digital Green Finance Architecture in the Context of Green Deal Implementation: Modern Fintech Tools and Solutions Under the Sustainable Development Concept. *Journal of Lifestyle and SDGs Review*, *4*(2), e02166. https://doi.org/10.47172/2965-730X.SDGsReview.v4.n02.pe02166

[13] Novikov, V. V. (2021). Digitalization of Economy and Education: Path to Business Leadership and National Security. *Business ethics and leadership*, *5*(2), 147-155. http://dx.doi.org/10.21272/bel.5(2).147-155.2021

[14] Samusevych Y.V., Novikov V.V., Artyukhov A.Ye., Vasylieva T.A. (2021). Convergence trends in the "economy – education – digitalization – national security" chain. *Naukovyi Visnyk Natsionalnoho Hirnychoho Universytetu,* (6), 177-183. https://doi.org/10.33271/nvngu/2021-6/177

[15] David S. Bedford, David Derichs, Sophie Hoozée, Teemu Malmi, Martin Messner, Vikash Kumar Sinha, Berend Van der Kolk, Frank Verbeeten. (20250. Digitalization of the finance function: automation, analytics, and finance function effectiveness. Management Accounting Research. *Management Accounting Research, 67*, 100942. https://doi.org/10.1016/j.mar.2025.100942

[16] Borojo, Dinkneh Gebre, Liu, Ningning. (2025). The impacts of climate finance and digitalization on resources and energy intensity: evidence from global south. *Energy, 332*, 137188. https://doi.org/10.1016/j.energy.2025.137188

[17] Fang, Mingjie, Liu, Feng, Xiao, Shufeng, Park, Kwangtae, Gao, Yangfei. (2025). Navigating ethical dilemmas in supply chain finance: the interplay between digitalization and cultural congruence. *Journal of Business Logistics, 46*(3), e70027. https://doi.org/10.1111/jbl.70027

[18] Lulaj, Enkeleda. (2025). Digitalization as catalysts of change in finance, accounting, and reporting: uncovering symbiotic relationships among financial factors. *Studies in Business and Economics*, 20 (1). https://doi.org/10.2478/sbe-2025-0006

[19] Wahyudi, H., Wisandani, I., Saputra, C., Lestari, W. R., & Leny, S. M. (2025). Digitalisation of Islamic Finance in the Era of Industrial Revolution 5.0: The Contribution of Crowdfunding and e-Wakaf to Islamic Fintech. *International Journal of Economics and Financial Issues*, *15*(2), 46–53. https://doi.org/10.32479/ijefi.17480

[20] Lei, Yuyan. (2025). Harnessing digitalization to enhance private finance in resource-rich industries. *Resources Policy*, *101*, 105371. https://doi.org/10.1016/j.resourpol.2024.105371

[21] Yang, Cunyi, Chen, Li, Li,Qi, Wu, Junwei. (2025). Digitalization of banks and inclusive finance: new insights from cultural industry's

financing constraints. *Financial Review*, *60*(1), 71-93. https://doi.org/10.1111/fire.12404

[22] Raza, Hamad, Riaz, Ahsan, Riaz, Nimra, Ramakrishnan, Suresh. (2025). *Algorithmic training, future markets, and big data for Finance Digitalization*.

[23] Mazhar, Maria, Majeed, Muhammad Tariq, Samreen, Isma. (2025). Environmental sustainability in technologically advanced economies: the role of eco-digitalization, green finance, and green technology. *Pakistan Journal of Commerce and Social Sciences*, 19(1), 28-54.

[24] Grigoraș-Ichim C.E., Cosmulese C.G., Savchuk D., Zhavoronok A. Shaping the perception and vision of economic operators from the Romania – Ukraine – Moldova border area on interim financial reporting. *Economic Annals-XXI*. 2018. Vol. 173(9-10). P. 60-67. https://doi.org/10.21003/ea.V173-10

[25] Viknianska A., Kharynovych-Yavorska D., Sahaidak M., Zhavoronok A., Filippov V. Methodological approach to economic analysis and control of enterprises under conditions of economic systems transformation. *Naukovyi Visnyk Natsionalnoho Hirnychoho Universytetu*. 2021. Vol. 4. P. 150-157. https://doi.org/10.33271/nvngu/2021-4/150

[26] Popelo O., Marhasova V., Perepeliukova O., Kakhovska O., Oprysok M., Khomenko S. (2025). The role of the digital business ecosystem in innovative and intellectual development of regions. Journal of Theoretical and Applied Information Technology, 102(1), 40-51. http://www.jatit.org/volumes/Vol103No1/3Vol103No1.pdf

[27] Anamaria-Geanina Macovei, Olha Popelo, Artur Zhavoronok, Robert Dankiewicz, Cristina Gabriela Cosmulese and Liubov Popova (2024). Pre- and post-effect of COVID-19 on the insurance industry: A study based on Romanian companies. Insurance Markets and Companies, 15(2), 74-84. doi: https://doi.org/10.21511/ins.15(2).2024.07

[28] Andriushchenko, O., Popelo, O., Tulchynska, S., Shepelenko, S., Falko, M., Shut, S. (2024). Blockchain technologies as a factor of the financial sustainability management of the enterprise and the e-commerce development. Journal of Theoretical and Applied Information Technology, 102(17), 6302-6316. https://www.jatit.org/volumes/Vol102No17/1Vol102No17.pdf.

[29] Digital economy trends. (2025). https://dco.org/wp-content/uploads/2024/12/Digital-Economy-Trends-2025.pdf

[30] Impact of the coronavirus pandemic on the global economy - Statistics & Facts. (2025). *Statista*. https://www.statista.com/topics/6139/covid-19-impact-on-the-global-economy

[31] Global gross domestic product (GDP) at current prices from 1985 to 2030. (n.d.). *https://www.statista.com/statistics/268750/global-gross-domestic-product-gdp/*

[32] How COVID-19 has pushed companies over the technology tipping point—and transformed business forever. (2020). https://www.mckinsey.com/capabilities/strategy-and-corporate-finance/our-insights/how-covid-19-has-pushed-companies-over-the-technology-tipping-point-and-transformed-business-forever?utm_source=chatgpt.com

[33] Public spending ratio in the member states of the European Union in 2024. (n.d.). *Statista*. *https://www.statista.com/statistics/263220/public-spending-ratio-in-eu-countries/*

[34] Annual social spending as a share of gross domestic product (GDP) in France from 2006 to 2024. (n.d.). *Statista*. *https://www.statista.com/statistics/467495/social-spending-share-france/*

[35] Basel Committee on Banking Supervision. Digitalisation of finance. (2024). https://www.bis.org/bcbs/publ/d575.pdf?utm_source=chatgpt.com

[36] Sasovets, I. (10 January 2025). Cyber Security in Banking: How We Address Rising Challenges. *TechMagic*. https://www.techmagic.co/blog/cybersecurity-in-banking