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THEORETICAL AND PRACTICAL VIEW OF FINANCIAL REGULATION OF INNOVATIVE ACTIVITIES IN THE CONDITIONS OF WAR IN UKRAINE

Key concepts in the field of innovative research were systematized, and the author's definition of innovation was formulated as the result of the materialization of an innovative idea into a specific tangible form, characterized by new consumer qualities, the implementation of which involves changing established methods of activity to achieve economic, social, environmental, or other effects. This approach expands the traditional understanding of the concept and allows for a more accurate assessment of innovation activity as a complex, dynamic system of actions and interactions among numerous participants in the innovation process, who conduct research and create various types of innovations. It also enables the development of effective tools to support innovation. Empirical data indicate that the financial regulation system of the innovation sector, which brings together both state and private institutions, serves as an effective catalyst for the quantitative growth of innovative projects and the enhancement of their quality. Through financial instruments such as budgetary funding, tax incentives, loans, and investment programs, state institutions contribute to the rapid commercialization of innovative projects and ensure the sustainable development of the economic ecosystem.

Private institutions provide a wide range of support for the development of innovative projects. A set of interrelated factors influencing the effectiveness of financial regulation of the innovation process has been identified, allowing for the assessment of its direction and the selection of management methods that are appropriate to the specifics of the innovation process and the type of innovation. Based on this, a model of financial regulation for innovative activity is proposed, featuring a clearly defined hierarchical structure that includes the following key components: goal and objective setting, strategy development, selection of financial stimulation tools, and monitoring of their effectiveness. This approach ensures the systematic and efficient financial regulation of innovations. The analysis of international rankings (GII, IPO, GSEI) indicates that Ukraine has the potential for innovative development. However, the current financial support mechanisms do not ensure adequate access to funding for innovative projects. According to the Global Innovation Index, Ukraine significantly lags behind European countries due to imperfect legislation, insufficient funding for scientific research, and a weak innovation infrastructure. A set of interconnected issues has been identified that pose major obstacles to national innovation development. These include inadequate funding for science, ineffective state innovation policy, an underdeveloped venture capital market, an unfavorable tax environment, and weak intellectual property protection.

To enhance Ukraine's innovative potential and strengthen its position in the global market, a number of strategic recommendations are proposed. These include increasing investment in scientific research, optimizing financial mechanisms, creating a favorable business environment, stimulating the commercialization of innovations, and promoting international cooperation. The implementation of these measures will improve the efficiency of budgetary spending, optimize the regulatory environment, and intensify technology transfer. Ultimately, this will drive the country's sustainable economic development and contribute to improving its global market position.

Keywords: *innovations, innovative activity, financial regulation, forms of financial regulation, institutional support*

JEL classification: *G18, O31, Q01*

Здійснено систематизацію ключових понять в галузі інноваційних досліджень та сформульовано авторське визначення інновації як результату матеріалізації новаторської ідеї у певній предметній субстанції, для якої властиві нові споживчі якості, а реалізація передбачає зміну усталених способів діяльності з метою отримання економічного, соціального, екологічного чи іншого ефекту. Такий підхід розширює традиційне розуміння цього поняття та дозволяє більш точно оцінювати інноваційну активність як складну динамічну систему дій і взаємодії численних учасників інноваційного процесу, які здійснюють інноваційні дослідження та створюють різного роду інновації, а також дає змогу розробляти ефективні інструменти підтримки інноваційної діяльності. Емпіричні дані вказують на те, що ефективним каталізатором кількісного зростання інноваційних проєктів та підвищення їхньої якісної складової є система фінансового регулювання інноваційної сфери, яка об'єднує державні та приватні інституції. Державні інституції через фінансові інструменти (бюджетне фінансування, податкові пільги, кредити, інвестиційні програми тощо) сприяють швидкій комерціалізації інноваційних проєктів, забезпечуючи сталий розвиток економічної екосистеми. Приватні ж інституції надають широкий спектр підтримки для розвитку інноваційних проєктів. Визначено комплекс взаємопов'язаних чинників, які впливають на ефективність фінансового регулювання інноваційного процесу, що дозволяє оцінити його спрямованість та підібрати ефективні методи управління, адекватні особливостям проходження інноваційного процесу та типу інновації. На цій основі запропоновано модель фінансового регулювання інноваційної діяльності, яка має чітко визначену ієрархічну структуру, що включає такі ключові компоненти: визначення цілей та завдань, розробку стратегії, вибір інструментів фінансового стимулювання та контроль за їх ефективністю. Такий підхід дозволяє забезпечити системність та ефективність процесу фінансового регулювання інновацій. Аналіз міжнародних рейтингів (GII, IPO, GSEI) дозволив стверджувати: Україна має потенціал для інноваційного розвитку, але існуючі механізми фінансової підтримки не забезпечують достатнього доступу до фінансування інноваційних проєктів. Так, за індексом глобальної інноваційності Україна значно відстає від європейських країн через недосконале законодавство, недостатнє фінансування наукових досліджень та слабку інноваційну інфраструктуру. Окреслено комплекс взаємопов'язаних проблем, які створюють значні бар'єри національному інноваційному розвитку, серед яких недостатнє фінансування науки, неефективна державна інноваційна політика, недорозвиненість ринку венчурного капіталу, несприятливе податкове середовище та слабкий захист інтелектуальної власності. Для підвищення інноваційного потенціалу України та зміцнення позицій на глобальному ринку запропоновано ряд стратегічних рекомендацій, що передбачають збільшення інвестицій у наукові дослідження, оптимізацію фінансових механізмів, створення сприятливого бізнес-середовища, стимулювання комерціалізації інновацій і міжнародного співробітництва. Їх реалізація дозволить підвищити ефективність використання бюджетних коштів, оптимізувати регуляторне середовище й активізувати трансфер технологій, що у підсумку стане рушійною силою сталого економічного розвитку країни та сприятиме покращенню її позицій на світовому ринку.

Ключові слова: *інновації, інноваційна діяльність, фінансове регулювання, форми фінансового регулювання, інституційна підтримка*

JEL classification: *G18, O31, Q01*

Introduction. The rapid pace of technological progress, globalization and climate change are causing large-scale economic transformations, significantly affecting the nature of innovation processes. This necessitates a thorough rethinking of the theoretical foundations and strategic aspects of the financial regulation of innovations. In this context, the transition of the Ukrainian economy to a model of innovative development requires drastic transformational changes that will be able to ensure the competitiveness of domestic enterprises on the international market. State economic policy should stimulate scientific and research activity, rapid commercialization of the latest technologies and development of human capital, contribute to the formation of a business environment capable of ensuring sustainable economic development and improving welfare. In the conditions of increased competition on the world market, Ukraine should actively integrate into global innovation networks, participate in international projects, develop international cooperation in the field of science and innovative technologies, attract foreign investment in innovation.

Currently, many questions regarding how to respond to risks and threats to the domestic financial system in the context of building an innovative development model remain debatable. Further research is needed on the theoretical and methodological aspects of financial regulation of innovative activities, the development of tools and measures to support the effective implementation of innovative projects, and the identification of long-term motives and incentives for the development of innovative entrepreneurship and its financial support.

Statement of the problem (relevance).

The full-scale war has led to a shortage of human and financial resources in Ukraine and the destruction of energy infrastructure, which has significantly destabilized the economy and created substantial risks for entrepreneurs, particularly those engaged in innovative activities. The war necessitates the adaptation of the national economy to new conditions. The absence of clear criteria

and standards for the financial regulation of innovative activities during wartime poses additional obstacles to the country's integration into global innovation processes.

Formulation of the goals of the article (statement of the task). The primary goal of this research is to develop theoretical and methodological approaches to the financial regulation of innovative activity under wartime conditions, with the aim of creating a favorable environment for shaping a model of innovative economic development in Ukraine. Despite numerous efforts, many challenges related to methodological, organizational, legal, financial, and informational support, as well as the economic stimulation of innovation and its financial regulation, remain unresolved in Ukraine. Another important objective is to establish a modern financial policy paradigm capable of supporting the development of a nationally driven innovation-based economic model. These challenges have heightened interest in the theoretical, methodological, and applied aspects of financial regulation in the sphere of innovation, particularly within the context of Ukraine's aspirations for European integration – underscoring the urgency and relevance of this study.

Review of the literature with a summary of the contributions of the authors. Scientific works by Ukrainian and foreign scholars are devoted to the study of financial regulation of innovative activity. For instance, N. Demchyshak [15], B. Pshyk [38], M. Krupka [30], and M. Zozulyak [25] examine the fundamentals of financial regulation of innovative activity in Ukraine, arguing that such regulation is essential for creating the necessary conditions for its development. Researchers O. Savasteev and T. Zhuravlev [39] regard financial regulation as a key instrument for supporting innovation, highlighting the importance of state investments and concessional loans in stimulating innovative projects. M. Kravchenko [29] emphasizes the need to integrate international standards and practices into Ukraine's domestic system of financial regulation to enhance the global competitiveness of Ukrainian innovative

enterprises. The works of M. Dyb, O. Yurkevich, T. Mayorov, and I. Vlasov [17] highlight the problems and prospects of financial support for innovative activities in Ukraine. In particular, they emphasize that effective financial regulation helps reduce the risks associated with innovative projects and enhances their investment appeal. K. Sutormina and E. Osadchii [40] note in their research that financial instruments such as grants and subsidies are key components of state support for innovation, contributing significantly to the growth of the country's innovation potential. The scientific works of N. Gavrylenko and O. Hryshchenko [11], as well as A. Nikitishyn and M. Pasichnyi [35], provide a detailed analysis of tax incentives for stimulating innovative activity. In particular, these authors note that introducing tax benefits for enterprises engaged in innovative activities can significantly enhance their financial stability and provide additional resources for the development of advanced technologies. Ukrainian scholars L. Franko [42] and A. Dubovik [18] emphasize the importance of establishing innovation clusters and technology parks as hubs for concentrating financial and technological resources essential for innovation development. They also highlight the critical role of the state in providing financial support for such initiatives.

The contribution of the authors of this study lies in the theoretical understanding of the pragmatic role of financial regulation in innovative activity and in ensuring the sustainable economic development of Ukraine. It also includes the substantiation of mechanisms to stimulate the development of domestic innovative entrepreneurship and the identification of optimal ways to apply these mechanisms under current market conditions.

The aim of the study is to develop the theoretical foundations and methodological approaches to the financial regulation of innovative activity under the conditions of military aggression by the Russian Federation in Ukraine, to identify key problems, and to develop recommendations for optimizing financial mechanisms to support the

development of innovative entrepreneurial activity at the national level.

The adaptive mechanism of financial regulation of innovative activity under current conditions was investigated using systemic analysis. The study employed dialectical and general scientific methods, including: empirical methods (such as observation, comparison, and description) to identify approaches to assessing trends in the financial regulation of innovative activity in global and domestic practice; theoretical and cognitive methods (such as formalization, hypothesis formulation, and testing) to explore the essence and features of financial regulation of innovation; and general logical methods (including analysis, synthesis, scientific abstraction, generalization, induction, deduction, and analogy) to identify methodological issues related to integrating financial regulation into the system of innovative activity and differentiating approaches to the concept of financial regulation.

Presentation of research results.

Modern globalization processes and the rapid development of innovative technologies necessitate the improvement of financial regulation of innovative activity, based on the implementation of modern scientific approaches to its stimulation. This, first and foremost, requires clarifying the economic meaning of key concepts such as "innovation" and "financial regulation of innovative activity".

In the scientific literature, there are different approaches and views regarding the interpretation of the essence of innovation, and the categorical and conceptual apparatus of the innovation sphere is classified in different ways. Thus, according to the Ukrainian economist Mykhailo Krupka, "innovation, like information, does not have a single definition, it is used in all industries without exception and in everyday life, and the specific interpretation of innovation depends on the method of a specific science, the purpose of research or simply on our everyday ideas" [30]. Sociologist Harold Barnett emphasizes the aspect of spiritual creativity in innovation, interpreting the

term as new thoughts, behaviors, or objects that are qualitatively different from previous forms [1]. In contrast, Robert Muller defines innovation as a change—whether active or passive—within a specific system in relation to its external environment [3]. Overall, the concept of innovation is broad and thus requires clarification. In our view, a new thought serves as an impetus for creative activity; it gives rise to an innovative idea which, through development and refinement, can eventually result in an innovation. However, it is hardly accurate to equate every new thought with innovation, as not every thought evolves into an innovative idea with the potential to generate actual innovation. Even a promising innovative idea may never materialize without comprehensive knowledge and information about the innovative product, as well as the necessary resources for its implementation. Similarly, not every change within a system in response to its environment can be considered an innovation. Some changes are merely part of the system's normal development and functioning.

The concept of «innovation» entered scientific discourse in the 19th century as an important indicator of societal development. It was initially used in anthropology and ethnography to study cultural changes. The term «innovation» comes from the English words *in* (inside) and *novation* (renewal), referring to something that arises from an internal need for renewal. Therefore, innovation is often interpreted as an activity associated with the continuous updating of equipment and technologies [8]. However, this interpretation excludes the process of creation, development, and release of innovative products from the definition of innovation. Additionally, it does not focus on the uniqueness of the technologies being implemented, as it only addresses the current renewal of resources. The term «innovation» entered domestic economic terminology in the early 1980s. According to the definition provided in the *Economic Encyclopedia*, innovation is a new approach to the design, production, and sale of goods, offering the innovator and their company competitive

advantages [43]. However, this definition is only one of many possible interpretations. First, it emphasizes the commercial aspect of innovation, overlooking its role in social processes. Second, it fails to capture the deeper essence of innovation, reducing it to mere changes in products or processes.

For a deeper understanding of the essence of innovation, it is necessary to turn to more comprehensive scientific sources. In particular, in the studies of Joseph Schumpeter, innovation is considered a driving force of economic development, associated with the process of “creative destruction.” He interprets innovation as a new scientific and organizational combination of production factors, motivated by entrepreneurial spirit [45]. According to Schumpeter, new ideas and technologies not only replace old ones but also destroy existing economic structures, forcing businesses to adapt or disappear. Innovations do not merely improve existing goods or services, but create fundamentally new ones, leading to the transformation of entire industries and markets. Thus, Schumpeter viewed innovation as a dynamic process that constantly renews the economy, stimulating its growth and development. It is important to note that Schumpeter did not limit innovations solely to the sphere of production, but also recognized their significance for the broader development of science, culture, the social sphere, and other areas. In these contexts, innovations appear as new ideas, methods, and practices that drive changes in the relevant spheres of social life.

Brian Twiss [5] and other Western economists define innovation as a process in which an invention or idea gains economic significance. Ukrainian economists also view innovation as a process. For example, Dmytro Chervanov and Lidia Neikova define innovation as a technical and economic process that, through the practical application of intellectual products – ideas and inventions – leads to the creation of improved properties, new product types, and new technologies. When these innovations appear on the market, they can generate additional income [44].

Instead, the Law of Ukraine “On Innovative Activity” defines innovation as “newly created (applied) and/or improved competitive technologies, products, or services, as well as organizational and technical solutions of a production, administrative, commercial, or other nature, which significantly improve the structure and quality of production and/or the social sphere” [21]. According to this Law, innovation is the result of intellectual or scientific and technical activity. International standards also consider innovation as the final result of innovative activity, embodied in the form of a new or improved product or technological process, and applied in practical activities or in a new approach to social services [2]. Therefore, when considering innovation from a static perspective, it is viewed as the final result of the scientific-production cycle or intellectual and scientific-technical activity. This process involves the introduction of new forms of labor organization and management, leading to the creation of goods with new consumer properties. As the analysis of scientific publications shows, there is significant diversification in the interpretation of the concept of “innovation” among authors (Table 1), primarily due to differences in the objects and subjects of the research they propose.

The classification of approaches to the definition of innovation allows for an assessment of the orientation of the innovation process, enabling the selection of effective management methods that are aligned with its features and the type of innovation.

After analyzing the views of various scholars, we define “innovation” as the result of materializing an innovative idea into a tangible subject – a product, technology, means of human activity, or service – that possesses new consumer qualities. Its implementation involves changing established methods to achieve an economic, social, environmental, or other effect [26].

To systematise the scientific and methodological approaches to the concept of «innovation», we propose the classification presented in Fig. 1.

Innovation is the highest stage of scientific and technological progress that generates an additional effect. This definition emphasizes the essence of innovation and highlights its application in the context of successful integration into practical innovative business activities. This is a complex, dynamic system involving the actions and interactions of various participants in the innovation process: scientists, inventors, innovative entrepreneurs, experts, and investors, who conduct innovative research, improve technological processes and equipment, and create various types of innovations. The innovation process also involves the state, financial institutions, investment companies, innovation funds, firms, and other participants whose activities are directly focused on planning and financing innovation.

The activity of innovative entrepreneurship is primarily determined by the availability of sufficient financial resources and their concentration in priority areas of scientific and technological development. Therefore, addressing the issue of creating preconditions for the effective development of innovative entrepreneurship largely depends on the existing forms and methods of financial regulation of innovation. At the present stage of market economy development, this is one of the key factors driving economic growth.

In modern economic literature, there are two main scientific perspectives on the essence of financial regulation. One views financial regulation as an integral part of the financial mechanism, while the other considers it an element of state regulation. Proponents of the first approach distinguish financial provision and financial regulation as the main subsystems of the financial mechanism, both of which influence socio-economic processes [9].

Other scholars believe that financial regulation is a direct form of state intervention in market processes through the provision of subventions, subsidies, and grants [40]. Regarding the concept of ‘financial regulation of innovation,’ domestic research defines it as a set of forms of state

Table 1

The essence of the economic category “innovation” in the context of scientific and methodological approaches

Author	Content
<i>innovation as a result</i>	
Denysenko M.P., Ryzhenko Ya.V. [16]	the result of introducing innovations for the purpose of changes in the object of activity and obtaining an economic, social or other type of effect
Ilyashenko, S. Prokopenko O. [27]	the final result of activities aimed at creating and using innovations embodied in the form of improved or new goods (products or services), technologies of their production, management methods at all stages of production and marketing of goods that contribute to the development and increase of efficiency of enterprises
Khariv P.S., Sobko O.M. [43]	the result of innovative activity reflected in the form of scientific, technical, organisational or socio-economic innovations
<i>innovation as a process</i>	
Budnikevych I.M., Shkola I.M. [10]	a complex process aimed at creating, developing and bringing a scientific or any other new idea to the stage of commercial use and distribution in the economy
Pavlenko I. A. [36]	the result of the creative process in the form of new consumer values created (or introduced)
Peresada A.A. [37]	the process of bringing a scientific idea or technological invention to the stage of practical use that generates profit, as well as the technical, economic and other changes in the social environment associated with this process
Fedorenko V.G. [41]	is a process aimed at the creation, production, development and qualitative improvement of new types of products, technologies, organisational forms
<i>innovation as change</i>	
Bajal Y. [7]	a change in production technology that is of historical significance and represents a leap from an old production function to a new one
Schumpeter J. A. [45].	changes in technology and management, new combinations of equipment and technology
<i>innovation as a set of measures</i>	
Nixon F., Twiss B. [5]	believes that innovation is a set of production, technical and commercial activities that lead to the introduction of new and improved industrial processes and equipment to the market
<i>innovation as a relationship</i>	
Amosha O. I., Katsura S. M., Shchetilova T. V. [6]	targeted activities of business entities aimed at commercialising the results of R&D. This activity is based on cooperation between research institutions, enterprises, investors and other innovation stakeholders
Geets V.A., Seminozhenko V.P. [12]	specific relations between the subjects of innovation activity that are formed in the process of creating, implementing and using innovations

influence on the activities of economic entities to intensify innovation, increase their interest in financial support for innovation projects, and use innovation as a means to gain a competitive advantage or minimize the effects of destructive phenomena within the country's economic system [28]. A

similar understanding of financial regulation of innovation is presented by V. Boronos and L. Rybina, who view it as the comprehensive legislative application of budgetary and tax instruments to influence state institutions, the national innovation system, innovation potential, and the country's security [9].

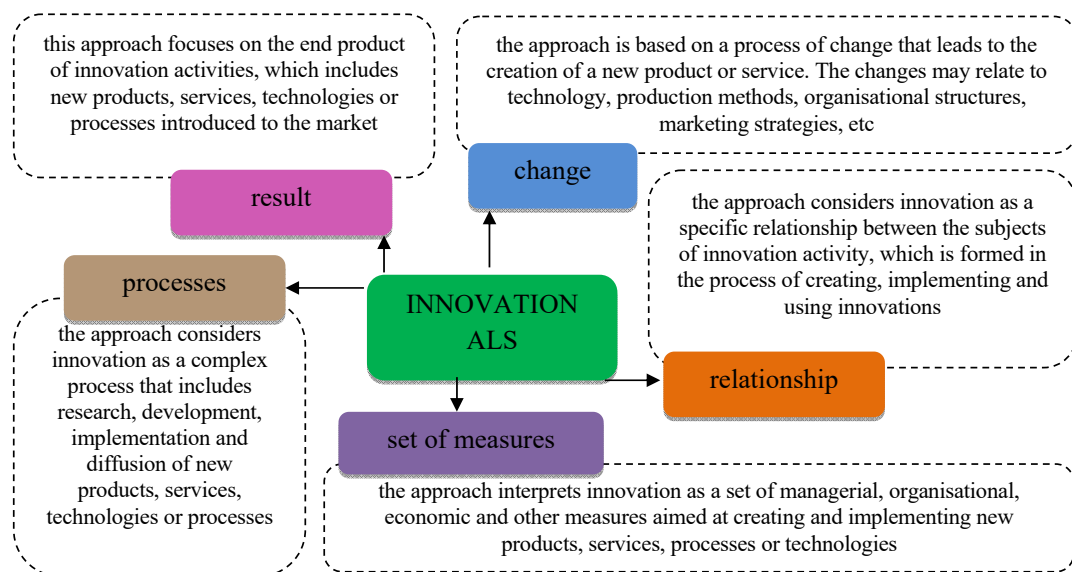


Fig. 1. Classification of scientific and methodological approaches to the concept of «innovation»

In our view, the financial regulation of innovation activity is a complex concept that involves the coordinated and legally regulated use of both state and non-state instruments to influence the functioning of the national economic system. The goal is to enhance the country's innovation potential and ensure its innovation security. The purpose of financial regulation in innovation activity is to influence the interests of business entities, encouraging them to adopt innovative approaches, pursue the development and implementation of innovative projects, and leverage innovation as a factor for competitive advantage or a means of preventing or minimizing negative phenomena in the country's economic system.

Financial regulation of innovation activity encompasses the interaction of functions, objects, management decisions, and appropriate methods aimed at enhancing the outcomes of innovation activities. It involves not only mechanisms to regulate specific processes but also the instruments (or means) of regulation used across different areas (or components) of innovation policy (Fig. 2).

The model of financial regulation of innovation activity, akin to a complex cybernetic system, serves as a crucial

regulator that ensures the functioning and development of the innovation sphere. Its construction is based on a clearly defined hierarchy, which includes the following stages (Fig. 3):

The main functions of financial regulation of innovation are as follows:

- strategic and tactical planning, which involves planning financial support for innovative activities based on forecasting and assessing the needs of the innovation sphere, using econometrics and modeling methods;

- creation of a legal framework, particularly for the functioning of capital markets, investment, and innovation in general. This includes developing and improving legislation that stimulates innovation and protects investors' rights, based on the principles of the rule of law;

- competition protection: financial regulation should promote the development of a competitive environment in the market for innovative goods. This is achieved by preventing monopolization, stimulating competitiveness, and ensuring transparency in market processes, using methods of antitrust regulation and competitive market theory;

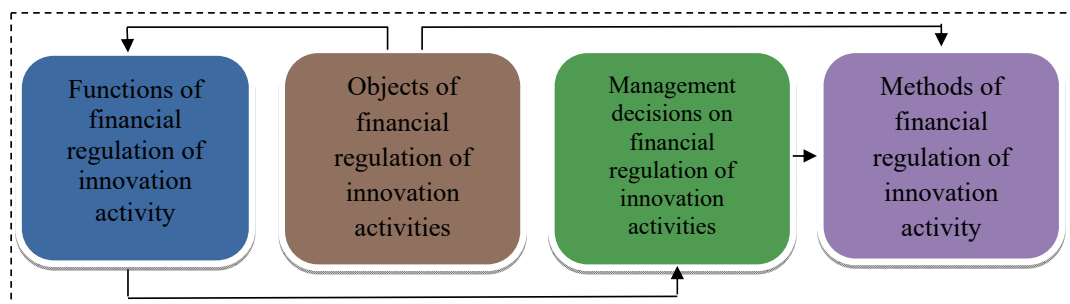


Fig. 2. Simplified model of financial regulation of innovation activities

*Composed by the authors

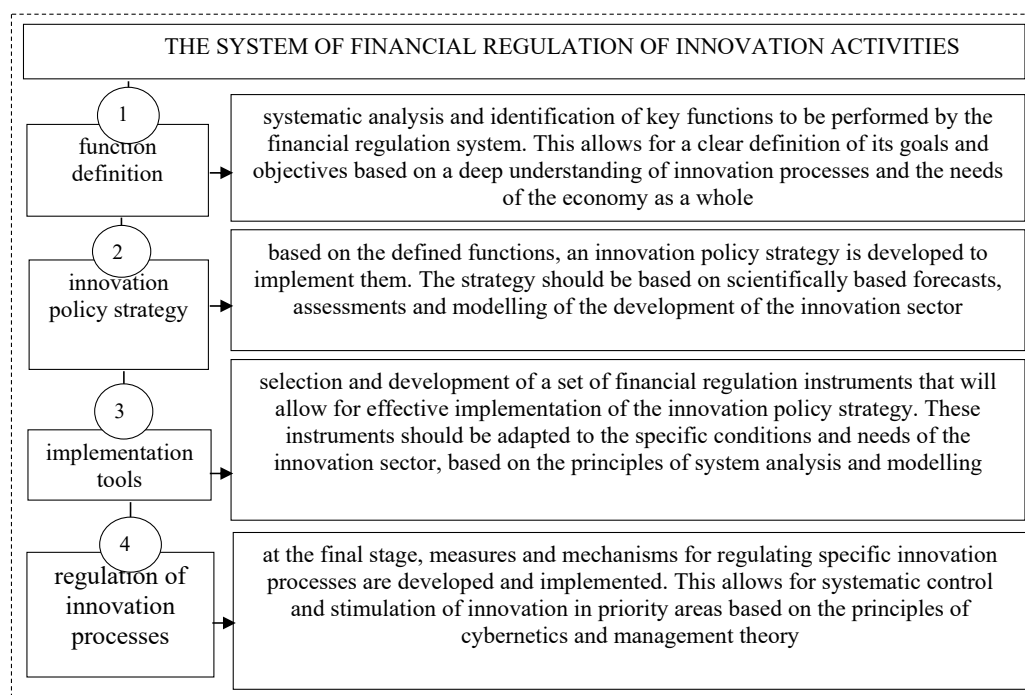


Fig. 3 The system of financial regulation of innovation activities

*Composed by the authors

– stimulating investment in the innovation sector: this is done through budgetary funds, tax incentives, public-private partnerships, and other financial regulation instruments, based on the principles of investment analysis and portfolio investment theory.

Based on the above functions of financial regulation of innovation activity, we can distinguish the following forms of financial regulation (Table 2).

Each country can use its own forms, tools, and regulatory mechanisms, taking into account the specifics of the national economy, innovative infrastructure, and investment climate.

Financial regulation of innovative activity should be based on scientifically grounded approaches that take into account:

- system analysis of innovation processes and the needs of the innovation sphere;

Table 2

Main forms of financial regulation of innovation in Ukraine, their advantages and disadvantages

Form	Description	Advantages	Disadvantages
<i>Budget and tax regulation</i>			
Budget financing of innovative programmes and projects	Allocation of funds from the state budget to support R&D, development of new technologies, and introduction of innovations into production	Stimulates investment and promotes the development of new technologies	Can lead to inefficient use of funds, corruption
Tax incentives for innovative companies	Reduced tax rates, tax credits, exemption from taxation of innovative income	Reduces the tax burden and makes innovation more profitable	May lead to losses of budgetary expenditures
<i>Credit and depreciation policy</i>			
Creating favourable conditions for lending to innovative projects	Concessional loans, government guarantees, interest rate subsidies	Reduces the cost of lending, makes innovation more accessible	May lead to an increase in public debt
Application of accelerated depreciation of innovative assets	Quick write-off of costs for the acquisition and implementation of new technologies	Reduces the tax burden, stimulates investments	May lead to an understatement of the tax base
<i>Investing</i>			
Public-private partnership (PPP) in the innovation sector	Cooperation between the state and the private sector in financing innovative projects	Attracts private investments, promotes implementation of large-scale projects	May lead to loss of state control over projects
Creation of special innovation funds	Investing in promising innovative companies and projects at early stages of development	Stimulates the development of new technologies and supports start-ups	Requires significant financial resources
Encouraging investment in innovation from institutional investors	Favourable regulation, tax benefits	Increases investment in innovation	Could lead to speculative growth in asset prices
<i>Examination and control of projects</i>			
Independent expertise of innovative projects	Assessment of investment attractiveness, risks, and potential efficiency	Reduces investment risks and facilitates informed decision-making	May lead to delays in project implementation
Control over the targeted use of budget funds and investments	Ensuring efficient and targeted use of funds	Prevents abuse and corruption	Increases administrative costs
<i>Investment protection (Legal protection of intellectual property)</i>			
Patenting of inventions	Granting exclusive rights to use an invention for a certain period	Protects innovative developments from copying, encourages investment in R&D	Requires significant costs for patent registration and maintenance
Registration of trademarks	Protection of unique designations of goods or services from unauthorised use	Allows innovative companies to clearly define their products on the market, stimulates branding	Requires constant market monitoring and trademark protection
Copyright	Protection of literary, musical, artistic and other works from unauthorized use	Ensures protection of innovative developments in design, software and other creative industries	Can be difficult to apply to some types of innovative developments

End of table 2

Form	Description	Advantages	Disadvantages
<i>Investor protection</i>			
Investor protection laws	Defining the rights and obligations of investors, mechanisms of protection against fraud and unfair competition	Contributes to the creation of a favorable investment climate, stimulates the attraction of investments in innovative activities	Requires clear and effective law enforcement
Establishment of special control and supervision bodies	Supervision of investment companies, prevention of abuse and fraud	Increases investor confidence in the market, promotes transparency and integrity	Requires significant financial and administrative resources
Information campaigns	Raising investors' awareness of their rights and risks, providing recommendations on choosing reliable investment companies	Reduces investment risks, encourages informed decision-making	Requires constant updating of information and effective communication

*Composed by the authors

- forecasting and modeling of the development of innovative activity;
- assessment of investment projects and associated risks;
- analysis of the effectiveness of financial regulation instruments;
- interstate and international cooperation in the field of innovation.

It is obvious that financial regulation of innovative activity plays a key role in stimulating innovation, developing the innovation sector, and enhancing the competitiveness of the economy.

In Ukraine, the financial regulation of innovative activity is implemented through a system of state and non-state institutions.

Government agencies:

- The Ministry of Economy of Ukraine: develops and implements state policy in the field of innovative activity, as well as coordinates the work of other authorities in this field;

- National Research Fund of Ukraine: provides grants for scientific research and development, as well as supports innovative projects;

- State Innovation and Investment Fund: invests in innovative projects that have a high potential for commercial success;

- Export Credit Agency of Ukraine: provides loans and guarantees to exporters of Ukrainian goods and services, including innovative products.

Non-governmental organizations:

- Ukrainian Association of Venture Capital and Private Investments: unites venture capital firms and private investors who invest in innovative projects;

- Ukrainian startup alliance: unites startups and supports the development of the startup ecosystem in Ukraine;

- business schools and incubators: provide training, mentoring and other resources for entrepreneurs who want to start innovative businesses.

In addition to these institutions, there are also many other organizations that offer various types of support for innovation in Ukraine, including funding, consulting, information services, networking, etc. Among such institutions should be noted:

- Innovation Development Fund (UKRAINIAN STARTUP FUND);

- State Innovative Financial and Credit Institution (SIFCU);

- National Fund of Ukraine (NFDU);

- Technology and Innovation Support Center (TECHNOLOGY AND INNOVATION SUPPORT CENTERS (TISCs)).

Information about these institutions, as well as their activities and outcomes, is illustrated in Fig. 4. As shown, organizations that support innovative activity in Ukraine offer a wide range of services that assist enterprises in developing and implementing new ideas, thereby stimulating economic growth and enhancing Ukraine's

competitiveness in the global market. The impact of institutional support on the innovative development of Ukraine can be analyzed using these authoritative sources:

– Global Innovation Index (GII) 2023 from the World Intellectual Property Organization (WIPO): Ukraine ranked 43rd out of 132 countries in the overall GII 2023 rating. In the sub-ranking ‘Financing of

Innovations,’ Ukraine ranked 62nd, which indicates the ongoing problem of limited access to financing for innovative projects;

– Innovation Policy Review (IPO) by the UN Economic Commission for Europe (UNECE): According to the 2021 IPO, Ukraine has several policy instruments to support innovation, such as tax incentives, grants, and incubators. However, the report

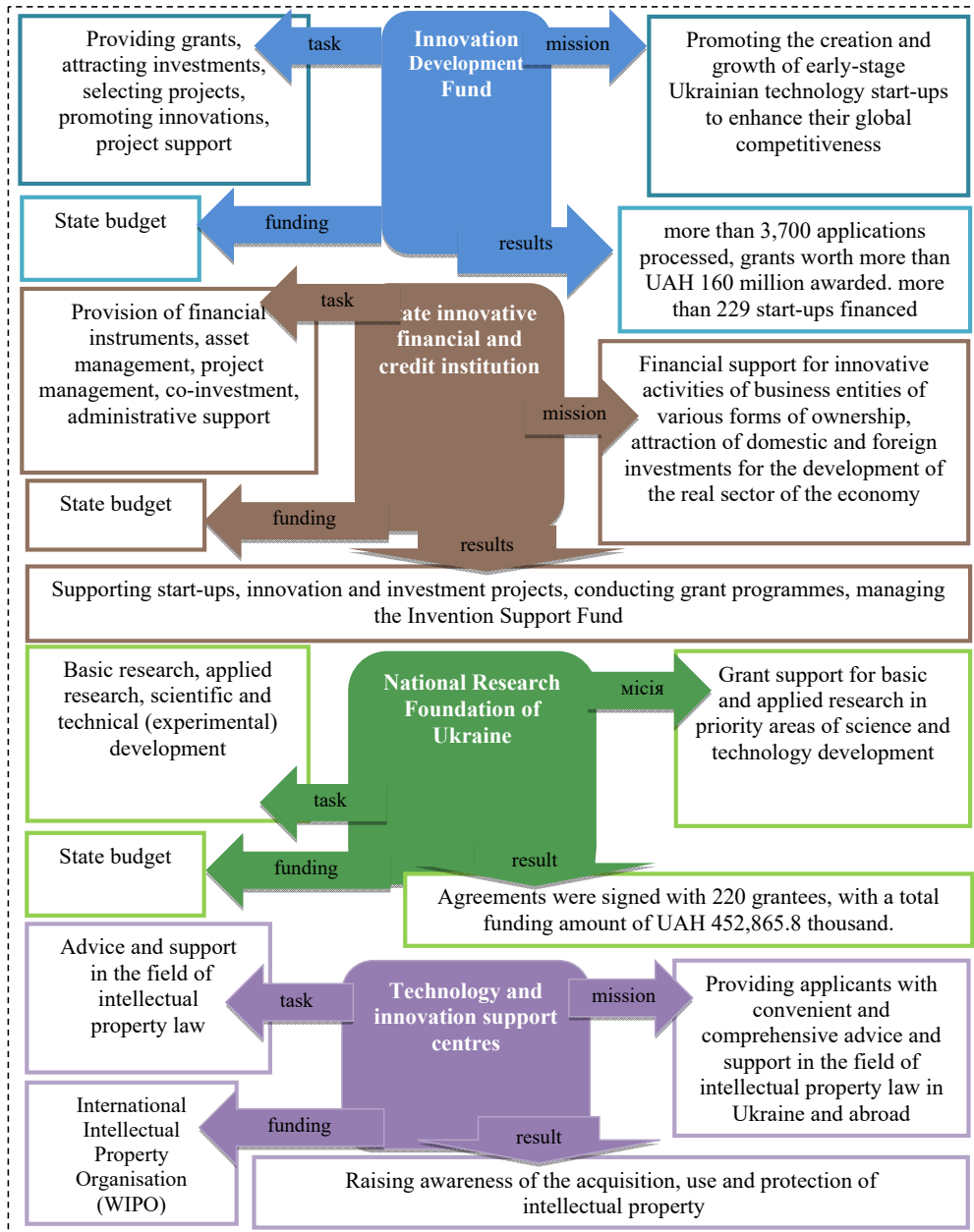


Fig. 4. Institutional support for innovation in Ukraine in 2023

also notes that these tools are not always effective or accessible to all innovative entrepreneurs;

– Global Startup Ecosystem Index (GSEI) 2023 by StartupBlink: Ukraine ranked 50th out of 100 countries in the overall GSEI 2023 rating and 67th in the ‘Funding’ sub-ranking. This confirms that access to financing remains one of the main challenges for Ukrainian startups [13; 14].

To better understand the impact of institutional support on the development of innovation in Ukraine, we will analyze the dynamics of the Global Innovation Index (GII) from 2021 to 2023 and compare Ukraine’s performance with that of selected EU countries (Fig. 5) [13; 14; 33].

As can be seen from Figure 5, from 2021 to 2023, Ukraine’s Innovation Index increased by 6 points, indicating an acceleration in innovation activity. In 2023, Ukraine ranked 55th out of 132 countries, improving its position compared to 2021, when it ranked 57th. Most EU countries also showed an increase in their Innovation Index during this period. The largest increases were recorded in Estonia, Latvia, Lithuania, and Ukraine (5 points each). The

lowest growth was observed in Hungary (2 points). It is worth noting that Ukraine holds a stronger position in the GII than Romania and Bulgaria, but still lags behind Estonia, Latvia, Lithuania, Poland, Slovakia, and the Czech Republic.

After analysing the dynamics of Ukraine’s Innovation Index from 2021 to 2023 and comparing it with the indicators of EU countries, we will now examine Ukraine’s position on a global level in more detail. To do this, we will refer to the Global Innovation Index (GII), published annually by the World Intellectual Property Organization (WIPO). The GII provides a comprehensive overview of a country’s innovative development based on a wide range of indicators that cover various aspects of the innovation ecosystem, including the regulatory and business environment, human capital and research, education, research and development (R&D), information and communication technologies, and knowledge and research results.

The dynamics of Ukraine’s innovation development indicators in the Global Innovation Index (GII) for 2021-2023 are illustrated in Fig. 6.

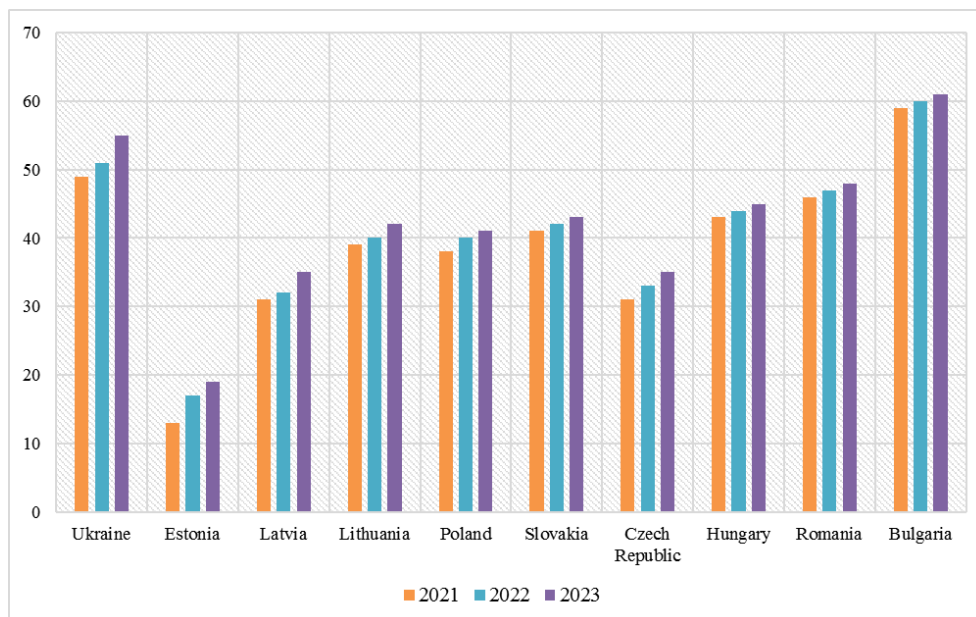


Fig. 5. Dynamics of the index of innovative activity in Ukraine for 2021-2023 and comparison with selected EU countries

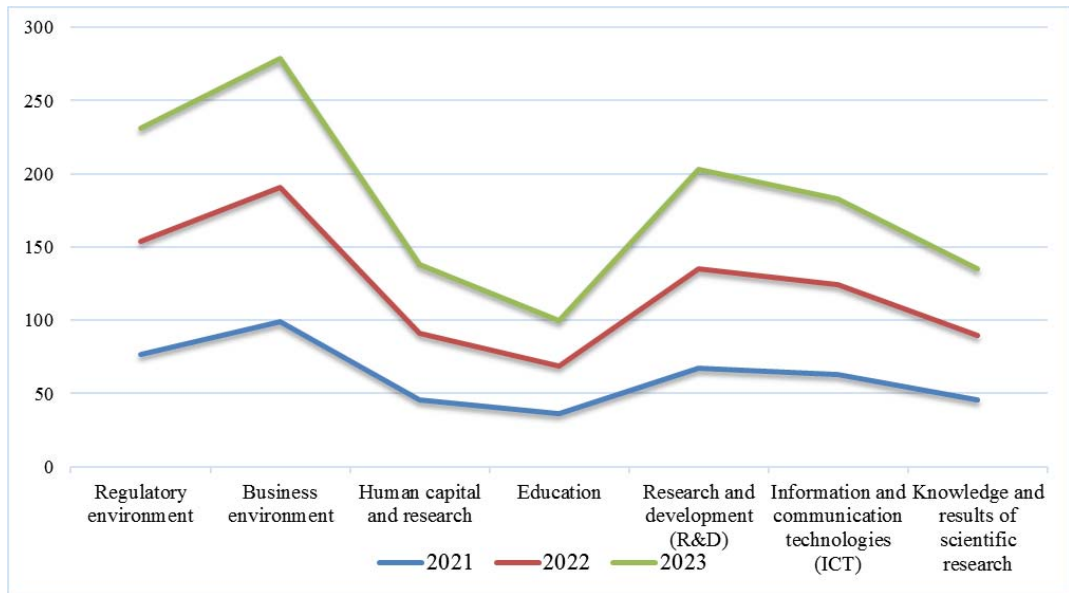


Fig. 6. Dynamics of Ukraine's innovation development indicators in the Global Innovation Index (GII) for 2021-2023

As can be seen from Figure 6, the changes in Ukraine's GII indicators for 2021-2023 are as follows:

- regulatory environment: Ukraine's position remained unchanged at 77th place throughout 2021–2023;

- business environment: Ukraine improved by 11 positions, moving from 99th in 2021 to 88th in 2023, indicating an improved investment climate and simplification of doing business;

- human capital and research: this indicator showed slight fluctuations, ranging from 45th to 47th place during the analyzed years, highlighting the need for increased investment in education and scientific research to develop human capital;

- education: this indicator declined, with Ukraine dropping from 36th in 2021 to 41st in 2023. This is an alarming signal, as the quality of education is crucial for driving innovative development;

- R&D: the position slightly worsened, falling from 67th in 2021 to 68th in 2023, indicating a need for greater investment in scientific research and development;

- information and communication technologies: Ukraine improved from

63rd place in 2021 to 59th place in 2023, reflecting positive developments in the digital economy;

- knowledge and results of scientific research: minor changes allowed Ukraine to rise from 46th in 2021 to 45th in 2023, underscoring the need to further improve outcomes in this area [14; 33].

The negative impact of the full-scale war in Ukraine has likely been most pronounced in the scientific and educational sectors – those that are primarily focused on the long-term development and enhancement of human capital. These sectors have suffered significant losses due to the destruction of infrastructure, the displacement of people, and the diversion of resources to meet military needs. However, other areas, such as the business environment and information and communication technologies, have proven to be more resilient. This resilience is due to several factors: the rapid adaptation of businesses to new conditions (many Ukrainian companies were able to transition to online operations, relocate parts of their business abroad, and find new sales markets); the accelerated development of digital technologies (during the war, Ukraine saw

significant growth in the IT sector, including both software development and online services); substantial financial and technical assistance from international partners.

The main problems hindering the development of innovative activity in Ukraine are related to the imperfect system of financial regulation, which is manifested in the following:

- insufficient funding of innovative activities: in 2022, expenditures on scientific research and development in Ukraine amounted to only 0.6% of GDP, compared to 2.8% in the USA and 3.2% in Germany. This severely limits the potential for innovation and leads to a brain drain of talented professionals abroad;

- ineffective state support for innovation: in 2022, only 10% of applications for innovation grants were approved, indicating that securing funding for innovation projects in Ukraine is a difficult and high-risk process;

- underdevelopment of the venture capital market: in 2022, venture capital investments in Ukrainian startups totaled just \$100 million, compared to \$27 billion in Israel and \$260 billion in the USA. This restricts access to capital, especially during the early stages of innovation projects;

- flaws in the domestic tax system: the effective income tax rate for innovative companies in Ukraine in 2022 was 18%, which is higher than in countries with well-developed innovation ecosystems. This makes innovation activity less attractive to investors and entrepreneurs;

- ineffectiveness of the intellectual property protection system: In 2022, Ukraine ranked 125th out of 132 countries in the index of favorable conditions for the protection of intellectual property, increasing the risks associated with innovative projects and deterring investment in research and development. [13; 14; 33].

- These problems negatively impact innovative activity, slowing down economic development and reducing the country's competitiveness in the global market. To overcome them, a comprehensive reform of the financial regulation system for innovative

activity is necessary. This reform would help unlock the innovative potential by optimizing financial mechanisms and directing them toward supporting innovative development. For this purpose, we offer the following set of strategic recommendations (Table 3).

The implementation of the proposed recommendations requires a systematic approach and joint efforts from the state, businesses, and the scientific community. At the legislative and institutional levels, the state must create a favorable environment for the development of innovations, ensure access to financial resources for innovative projects, and provide conditions for businesses to invest in innovations and collaborate with scientific institutions to develop new products and technologies. The scientific community should generate new ideas and actively participate in the commercialization of scientific developments. An important condition for success is the continuous monitoring and evaluation of the effectiveness of the proposed recommendations. This will allow for timely adjustments and enable the adaptation of the innovation support strategy to evolving conditions.

Therefore, the implementation of the proposed strategic recommendations will optimize financial mechanisms for supporting innovation development and contribute to increasing Ukraine's competitiveness and its integration into the global economic space.

Conclusions. The main provisions of the article based on the results of the study.

1. The article substantiates those dynamic changes in the global environment require the rapid development of a model for the innovative development of the national economic system. This requires a comprehensive reform of the financial regulation of innovation activity, the improvement of innovation policy efficiency, and the active integration of the national economy into global innovation processes.

2. It has been proven that the integration of Ukraine's economy into global innovation processes is currently slowed not only by the aggression of the Russian Federation but also by insufficiently developed methodological approaches to the financial regulation of

Table 3

Strategic recommendations for optimising financial mechanisms to support innovation development in Ukraine

Direction	Recommendation	Expected result
Increasing the volume of investments	Increase budget spending on research and development to 2% of GDP. Create a venture capital fund with state participation. Introduce tax incentives for investors who invest in innovative projects.	Growth of investments in innovation activities. Increase in the number of innovative projects. Increased commercialisation of innovative developments.
Increase the efficiency of funds use	Introduce a transparent and competitive system for selecting innovative projects for state support. Introduce a system for monitoring and evaluating the effectiveness of the use of funds allocated to support innovation. Increase the participation of the private sector in financing innovations.	Efficient use of budget funds. Reduction of risks of inefficient use of funds. Increased attraction of private capital to the innovation sector.
Creation of a favourable environment	Simplify procedures for obtaining permits and licences for innovative enterprises. Reduce administrative barriers to innovation. Introduce a system of intellectual property protection.	Reducing bureaucratic barriers to innovation. Increase the level of trust in institutions that support innovation. Stimulate the development of innovative enterprises.
Stimulating commercialisation	Create programmes to support the commercialisation of innovative developments. Introduce a system of technology transfer from research institutions to the real economy. Create a network of incubators and business accelerators to support innovative enterprises.	Increase in the number of innovative products and services brought to the market. Increased competitiveness of Ukrainian goods and services in the global market. Creation of new jobs in the field of innovation.
Increasing competitiveness	Introduce a system of comparative analysis with other countries regarding the level of support for innovation. Develop a long-term strategy for Ukraine's innovation development. Increase Ukraine's participation in international programmes and projects on innovation.	Raising awareness of the state of innovation in Ukraine. Identification of priority areas for innovation development. Strengthening international cooperation in the field of innovation.

innovative activity, which fail to account for the challenges of wartime and do not contribute to enhancing the efficiency of innovative activity.

3. A comprehensive analysis of scientific works and concepts has made it possible to systematize key concepts and categories in the field of innovative research. In particular, the author proposes a definition of innovation as the result of materializing an innovative idea into a specific subject matter – a product, technology, means of human activity, or

service – characterized by new consumer qualities. The implementation of this innovation involves changing established methods of activity to achieve an economic, social, ecological, or other effect.

4. A classification of approaches to determining the economic content of innovation has been carried out, and a set of interrelated factors influencing the effectiveness of financial regulation in the innovation process has been identified. This allows for an assessment of its direction and enables the selection of effective management

methods that align with the specifics of the innovation process and the type of innovation.

5. The essence of innovative entrepreneurial activity is defined as a complex, dynamic system of actions and interactions among various participants in the innovation process: scientists, inventors, innovative entrepreneurs, experts, and investors. These participants carry out innovative research, improve technological processes and equipment, and create various types of innovations. This approach enables an objective assessment of the innovative activity of economic entities and the development of targeted state support instruments for innovative development.

6. A model of financial regulation for innovative activity has been developed, based on a clearly defined hierarchical structure that provides for the sequential implementation of the following stages: formulation of goals and objectives, strategy development, selection of optimal financial stimulation tools, and monitoring the effectiveness of their application. This approach ensures the integrity and efficiency of managing innovation processes.

7. A comprehensive assessment of the role of a wide range of financial instruments (budgetary financing, tax benefits, lending, investment programs, public-private partnerships) in stimulating innovative activity was conducted, taking into account the specifics of the domestic economy and the level of development of the institutional environment. This analysis made it possible to identify the strengths and weaknesses of each of these tools.

8. It is argued that the system of financial regulation of the innovation sphere in Ukraine unites both state and private institutions. Government bodies provide financial support through various programs and funds aimed at stimulating innovative activities, including grants, subsidies, and soft loans. The private sector (in particular, venture firms, business schools, incubators, and startups) plays a key role in providing financial resources and investments at the early stages of innovative projects. Together, these elements form a multifaceted support system that contributes

to the effective development of innovative activities and the commercialization of innovative ideas in Ukraine.

9. It is shown that, according to the quantitative evaluations from international innovation development ratings (GII, IPO, GSEI), Ukraine demonstrates positive conditions for innovative activity. However, a qualitative analysis of the available instruments for financial support of innovative projects reveals significant shortcomings, such as the underdevelopment of the venture capital market, the insufficient number of state innovation support programs, limited access to grant programs and bank lending, high risks for investors, and bureaucratic obstacles that hinder the attraction of investments into innovative projects.

10. The analysis of the Global Innovation Index confirms that Ukraine significantly lags behind European countries in this regard. This is attributed to the imperfection of national legislation in the field of innovation, insufficient financing of scientific research, and the underdevelopment of innovation infrastructure.

11. A complex set of interconnected problems has been identified that significantly hinder the development of a model for innovative economic development in Ukraine. These include insufficient financing of scientific research, ineffective state innovation policy, underdevelopment of the venture capital market, an unfavorable tax environment, and weak protection of intellectual property.

12. A set of strategic recommendations aimed at the formation of an effective innovation system in the country, capable of ensuring sustainable economic development and increasing the competitiveness of the economy, is proposed. These measures, in particular, involve increased investment in scientific research and development, optimization of financial mechanisms, creation of a favorable business environment, stimulation of innovation commercialization, and expansion of international cooperation in the field of innovation.

Their implementation, in our opinion, will make it possible to overcome the systemic

barriers that hinder innovative development, contributing to the rapid integration of the domestic economy into the global economy, the attraction of foreign investments, technologies, and know-how. Ultimately, this

will increase the investment attractiveness of the Ukrainian market for international investors and technological partners and stimulate the innovative development of domestic companies.

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THEORETICAL AND PRACTICAL VIEW OF FINANCIAL REGULATION OF INNOVATIVE ACTIVITIES IN THE CONDITIONS OF WAR IN UKRAINE

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Key concepts in the field of innovative research were systematized, and the author's definition of innovation was formulated as the result of the materialization of an innovative idea into a specific tangible form, characterized by new consumer qualities, the implementation of which involves changing established methods of activity to achieve economic, social, environmental, or other effects. This approach expands the traditional understanding of the concept and allows for a more accurate assessment of innovation activity as a complex, dynamic system of actions and interactions among numerous participants in the innovation process, who conduct research and create various types of innovations. It also enables the development of effective tools to support innovation. Empirical data indicate that the financial regulation system of the innovation sector, which brings together both state and private institutions, serves as an effective catalyst for the quantitative growth of innovative projects and the enhancement of their quality. Through financial instruments such as budgetary funding, tax incentives, loans, and investment programs, state institutions contribute to the rapid commercialization of innovative projects and ensure the sustainable development of the economic ecosystem.

Private institutions provide a wide range of support for the development of innovative projects. A set of interrelated factors influencing the effectiveness of financial regulation of the innovation process has been identified, allowing for the assessment of its direction and the selection of management methods that are appropriate to the specifics of the innovation process and the type of innovation. Based on this, a model of financial regulation for innovative activity is proposed, featuring a clearly defined hierarchical structure that includes the following key components: goal and objective setting,

strategy development, selection of financial stimulation tools, and monitoring of their effectiveness. This approach ensures the systematic and efficient financial regulation of innovations. The analysis of international rankings (GII, IPO, GSEI) indicates that Ukraine has the potential for innovative development. However, the current financial support mechanisms do not ensure adequate access to funding for innovative projects. According to the Global Innovation Index, Ukraine significantly lags behind European countries due to imperfect legislation, insufficient funding for scientific research, and a weak innovation infrastructure. A set of interconnected issues has been identified that pose major obstacles to national innovation development. These include inadequate funding for science, ineffective state innovation policy, an underdeveloped venture capital market, an unfavorable tax environment, and weak intellectual property protection.

To enhance Ukraine's innovative potential and strengthen its position in the global market, a number of strategic recommendations are proposed. These include increasing investment in scientific research, optimizing financial mechanisms, creating a favorable business environment, stimulating the commercialization of innovations, and promoting international cooperation. The implementation of these measures will improve the efficiency of budgetary spending, optimize the regulatory environment, and intensify technology transfer. Ultimately, this will drive the country's sustainable economic development and contribute to improving its global market position.

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