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DIRECTIONS FOR THE FORMATION AND DEVELOPMENT OF THE INNOVATIVE ECONOMY FOR THE PURPOSE OF INCREASING THE NATIONAL WEALTH

DIRECCIONES PARA LA FORMACIÓN Y DESARROLLO DE UNA ECONOMÍA INNOVADORA CON EL FIN DE AUMENTAR LA RIQUEZA NACIONAL

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ABSTRACT

Innovative development has been increasingly a cornerstone of transformation in the socio-economic sphere of nations, laying the ground for progress in many spheres. Yet, regarding the strategic establishment of a resilient and innovation-driven economy that could contribute to sustainable growth with due consideration of environmental and social priorities, there are still some research gaps. The given study tries to fill this lacuna, analyzing strategies toward the formation and development of an innovative economy capable of providing the catalyst for transformative changes in the sectors of production for social progress and sustainable human development. Based on this analysis, innovation is regarded as a necessary tool to enhance national competitiveness, consolidate the efficiency of the economic system, and contribute decisively to the growth of national wealth. Innovation has acted as a strong driver over recent decades both for extending economic activity and building resilience in national economies to a gradually more competitive world economic environment. This sort of environment for creating, stimulating, and supporting needs to be accomplished through policy frameworks that encourage both the public and private sectors to engage in innovative efforts.

Keywords: Innovation, Economic development, National wealth, Infrastructure, production.

RESUMEN

El desarrollo innovador se ha convertido cada vez más en una piedra angular de la transformación en la esfera socioeconómica de las naciones, sentando las bases para el progreso en muchas esferas. Sin embargo, en lo que respecta al establecimiento estratégico de una economía resiliente e impulsada por la innovación que pueda contribuir al crecimiento sostenible con la debida consideración de las prioridades ambientales y sociales, aún existen algunas lagunas en la investigación. El presente estudio intenta llenar esta laguna, analizando estrategias para la formación y el desarrollo de una economía innovadora capaz de proporcionar el catalizador de cambios transformadores en los sectores de la producción para el progreso social y el desarrollo humano sostenible. Con base en este análisis, la

innovación se considera una herramienta necesaria para mejorar la competitividad nacional, consolidar la eficiencia del sistema económico y contribuir decisivamente al crecimiento de la riqueza nacional. La innovación ha actuado como un fuerte motor en las últimas décadas, tanto para ampliar la actividad económica como para generar resiliencia en las economías nacionales ante un entorno económico mundial gradualmente más competitivo. Este tipo de entorno para crear, estimular y apoyar las necesidades se logra mediante marcos de políticas que alienten tanto al sector público como al privado a participar en esfuerzos innovadores.

Palabras clave: Innovación, Desarrollo económico, Riqueza nacional, Infraestructura, Producción.

INTRODUCTION

One of the ultimate goals of any country's economic activity is to increase its national wealth. National wealth, as an object of statistical research and an economic category, reflects the accumulation of not only material, but also intangible assets of the population, enterprises, and the country as a whole. National wealth is the basis and result of economic development (Jacobi & Tzur, 2024). This means that the structure, volume, quality of the national wealth, its efficient use, and correct calculation determine the level and quality of the country's social and economic development, and consequently, the competitiveness of the national economy as a whole. National wealth also acts as the most general integrated macroeconomic indicator used to evaluate the results of economic activity, economic opportunities, and strategic potential of different countries (Hamilton & Hepburn, 2014; Yusuf & Nasrulddin, 2024).

Mammadova (2021, p. 420) studied the national wealth as an overall evaluated indicator of the real results of the economic activity of any country during the historical development period and stated that it is from this point of view that the national wealth is the sum of all kinds of blessings accumulated in the country during a certain period, and it can be estimated as the main factor that ensures sustainable economic development. In order to ensure sustainable development, it is necessary to consider the discovery and increase of national wealth, the complete and objective assessment of its structure and dynamics as urgent and important tasks. Thanks to national wealth, it is possible to determine the prospects of the future development of the economy, the economic power of the state, and its advantages compared to various countries of the world. To increase this macroeconomic indicator, special measures of the socio-economic policy of the country are

needed. One such measure is the formation and development of an innovative economy (Kovač & Verbič, 2023).

Innovation plays a pivotal role in economic development, encompassing multiple dimensions that contribute to societal advancement. To explore "What is innovation, and how does it interact with economic development?", it's essential to analyze its definition, the policies that foster it, its connection to growth, and the unique challenges faced by developing economies in driving innovation. Innovation involves creating and implementing new or improved products, services, processes, or ideas that address unmet needs and deliver value. Not limited to technological advancements, innovation includes novel approaches in problem-solving, organizational practices, and business model evolution (Henaó-García & Montoya, 2023).

Key components underpinning innovation include creativity and ideas, organizational culture, resources, effective leadership, feedback mechanisms, and risk management (Al-Jayyousi et al., 2023). Creativity serves as the foundation of innovation, driving original ideas that challenge norms. An organizational culture that supports innovation encourages curiosity, risk-taking, collaboration, and experimentation, while effective leadership provides a clear vision and purpose, guiding innovation initiatives (Saxena et al., 2024). Additionally, sufficient resources—financial, human, technological, and infrastructural—are critical for fostering innovation, as is an ongoing feedback loop that enables continuous improvement and adaptation based on successes and failures. In this regard, given the inherent risks and uncertainties of innovation, robust risk management is essential for assessing and addressing potential challenges (Liu et al., 2023; Spieth et al., 2023). These elements collectively shape innovation as a complex but essential force driving economic progress and societal transformation, especially as economies seek to overcome barriers to sustainable growth.

Innovation is widely acknowledged as a crucial driver of economic development, significantly enhancing productivity, competitiveness, and even spurring the emergence of new markets and industries. The link between innovation and economic growth is well-supported, with numerous studies indicating its positive effects on GDP, labor productivity, and living standards. For example, empirical evidence highlights this relationship: one study found a long-term positive correlation between innovation and per capita economic growth in European countries from 1989 to 2014, while another global analysis covering 71 countries from 1996 to 2020 also reinforces this positive connection (Maradana et al., 2017; My Thi Thi & Tran Phu Do, 2024). In addition, digital communication technologies

have been associated with improved innovation performance and productivity gains (Al-Zoubi, 2024).

Innovation impacts economic development through mechanisms such as productivity gains, where more efficient processes boost output with fewer inputs, market expansion that opens up new industries and diversification opportunities, and job creation, which offsets employment losses in some sectors by generating roles in new industries and for novel products and services. Therefore, to promote innovation and, consequently, economic growth, governments and organizations implement various policies and strategies, including fiscal incentives and subsidies that lower R&D costs for companies, making innovation investments more appealing. Direct government funding, through grants, supports both public and private research initiatives, while investment in education and training equips the workforce with the skills essential for engaging in innovative activities. Governments play a vital role in supporting research and development (R&D) through public institutions and collaborations with private entities, as well as protecting intellectual property rights, ensuring that inventors and businesses reap the benefits of their innovations (Chaparro-Banegas et al., 2024; Fatma & Haleem, 2023; Zemlyak et al., 2023).

Considering the elements discussed above, the purpose of the study will be to review and analyze strategies that lead towards a resilient, innovation-driven economy in pursuit of not only economic progress but also social and environmental priorities contributing to sustainable growth. This work investigates mechanisms, sources of finance, and the state's role in encouraging innovation to fill the gaps in the theoretical understanding of how innovative development can contribute to national competitiveness, economic efficiency, and growth of national wealth. The objectives listed will be addressed through the use of several methods such as: generalization, grouping, comparison analysis, mathematical-statistical analysis, and analysis of development dynamics.

DEVELOPMENT

Necessity of formation and development of innovative economy

The formation of an innovative economy means that intelligence and human creativity become the leading factors of economic growth and national competitiveness. An innovative economy is also a new type of relationship between its subjects, that is, the relationships between the subjects of innovation activity. In the 21st century, the development of the innovative economy is considered one of the main strategic tasks of the comprehensive development of the

country. Increasing the efficiency of innovative activity is the most important condition for the formation and development of an innovative economy. Both at the national and regional levels, the innovation system consists of economic entities that carry out innovative activities within the framework of the relevant normative-legal basis of state policy with the aim of creating and selling innovative products. This concept is closely related to the "innovative economy" category, which studies the rules and problems of the formation and operation of the innovative economy (in the form of organizational structures and tools used for implementation) with the aim of creating innovations and applying them in real practice. In this regard, a number of areas of the innovative economy are distinguished in terms of organizational structure:

- The public sector (organizations of ministries and departments that provide management and coordination in the field of innovation and non-profit organizations, research institutes, enterprise funds, etc., mainly or completely financed by the state);
- The higher education sector, which includes higher education institutions, research institutes, business schools, etc.;
- The business sector operating in the field of innovation, which is related to the predominant part of the income of the relevant organizations;
- The private non-profit sector, including public organizations, professional societies, and private non-profit organizations operating in the field of innovation.

The production structure of the innovative economy, which determines the nature of the relevant activity, is formed on the basis of:

- First, reproduction of fundamental knowledge;
- Second, conducting applied research and applying technological developments;
- Third, production of competitive and high-tech products in various industries;
- Fourth, development of the infrastructure of national and regional innovation systems.

As part of the joint activity of these sectors and related activities, an innovative field of national and regional economies is formed, whose task is to reproduce knowledge and the latest innovations by applying them in other fields, and to produce scientifically high-tech products. Based on this, the main features of the innovation field and the structural elements and components of innovation

stimulation are formed, the main directions and measures are determined for implementing the relevant state policy, and the processes of trading the results of intellectual activity, preparing production, and putting innovative products on the market are carried out.

There are objects and subjects of the innovative economy, and there is no particular difference in their definition compared to the traditional economy: the object comprises the limited resources and unlimited needs of society; the subjects are households, firms, and the state. However, entrepreneurship stands out as a distinct subject in the innovative economy. This feature can be seen in many works devoted to economics. The innovative economy, as a system, has a number of characteristic features, among which the following can be distinguished:

- Active informatization;
- Mass globalization;
- Long-term development perspective;
- Increasing demand for knowledge as a factor of production;
- Rapid pace of the spread of innovations and novelties, etc.

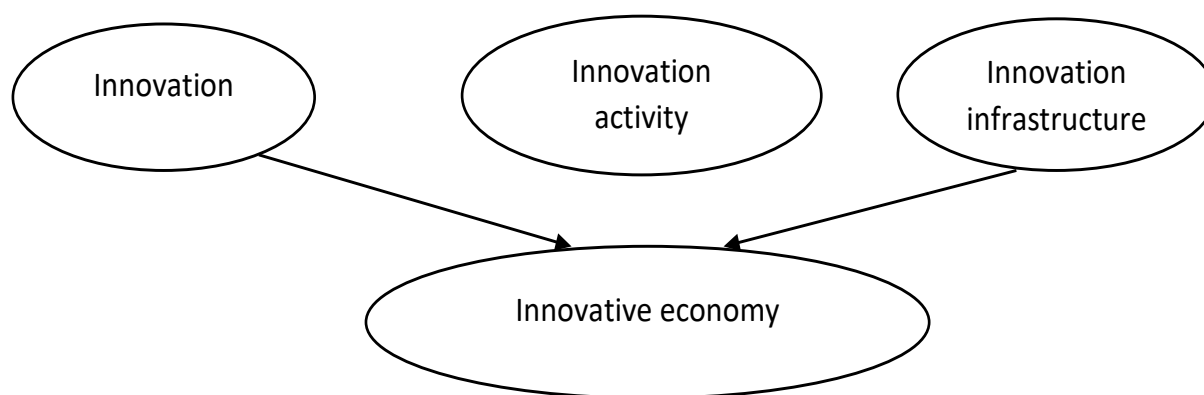
According to Kochreli (2021, p. 165), the formation of an innovative economy depends on the creation of an effective mechanism for managing the implementation of complex innovation projects in the regions, and it cannot be achieved without state support. Therefore, to successfully implement regional innovation policy in order to form an innovative economy, she proposed taking a set of various measures as follows:

1. Development of the development concept of the regional innovation infrastructure by determining the long-term strategic goals and the means of achieving them within the framework of forming the innovative economy.
2. Incorporation of the main provisions of state programs reflecting the innovative development of the regions into the general development program of the country.
3. Organization of the practical activities of local and regional authorities on the adoption and implementation of normative documents of regional importance.

According to Kraus (2019, p. 41), the formation and development of an innovative economy require the “production” of new ideas aimed at innovation. In modern times, design work, scientific results, technological and institutional innovations are the main driving forces of economic progress and innovative development in the world’s leading countries. In the conditions of a knowledge economy’s development, the innovative economy is characterized by an increase in scientific and technical production, knowledge-intensive technologies, and the intellectualization of production factors .

The formation of an innovative economy is based on a number of basic elements, which are shown in Figure 1.

Fig 1: Basic elements of the innovative economy.

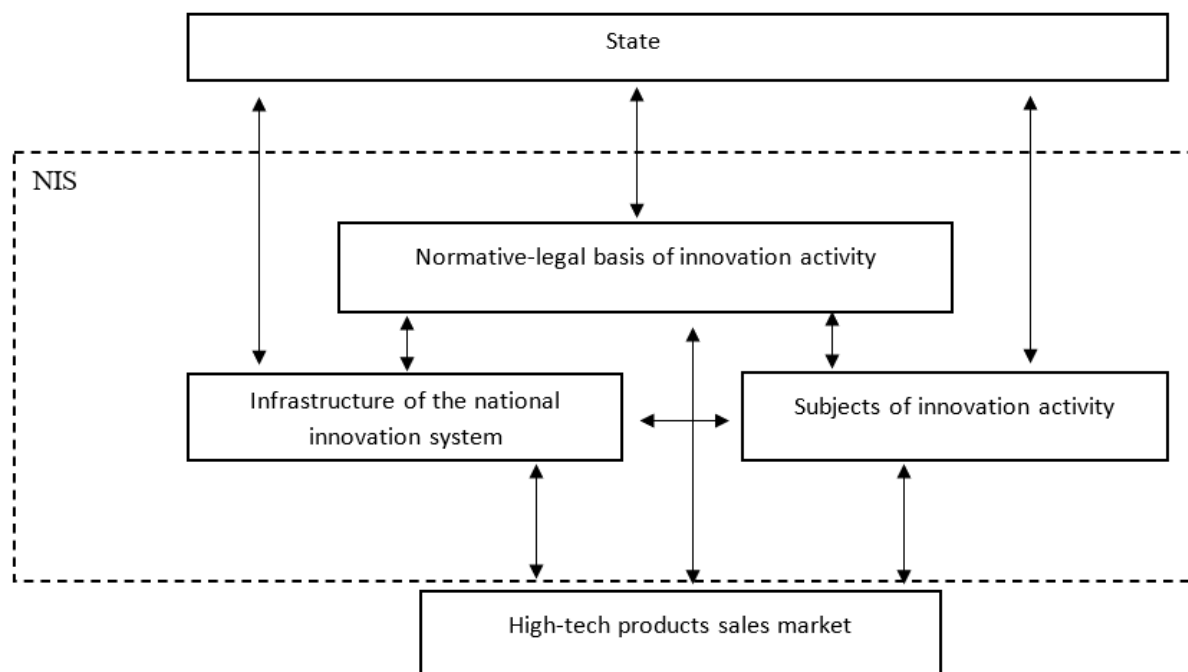


Source: own elaboration.

The main elements that make up the innovative economy are innovation itself, innovation activity, and its infrastructure. Since innovation infrastructure has the ability to ensure the efficiency of innovation activity, it is considered one of the main constituent elements of the innovative economy. Innovation infrastructure is a complex of various interrelated structures (institutions, organizations, enterprises, and their associations) that serve and ensure the implementation of innovation activity, regardless of their form of ownership.

One of the main elements of the innovative economy's development is the national innovation system, which allows for an increase in the intensity of the country's economic development and national wealth through the use of effective mechanisms for obtaining, transferring, and using the results of scientific, technical, and innovative activities. Such a system is a set of legislative, structural, and functional components that ensure the development of innovation in the country and transform knowledge into new technologies, products, and services consumed in national or global markets. The structure of the national innovation system is shown in Figure 2.

Fig 2: Structure of the national innovation system.



Source: own elaboration.

Thus, the state plays a decisive role in the operation of national innovation systems. By forming the regulatory environment, the state determines the rules of action of subjects participating in the innovation process. It includes subjects of national innovation systems - organizations and individuals engaged in the creation and promotion of innovative products.

Factors affecting the formation and development of innovative economy

In modern conditions, innovation and novelty are the main factors in the development of socio-economic systems, determining their structure and growth rate. Therefore, the organization and stimulation of innovation, and the development of modern approaches to the formation of strategies and directions for the innovative development of economic systems, are important and urgent issues. The level of economic development of countries and individual regions, and their ability to maintain stability in the context of the cyclical dynamics of the world economy, is mainly determined by the effectiveness of managing innovation processes and innovation itself. This approach is based on the understanding of scientific and innovative activity as the main driving force of socio-economic development in the modern era. The modern economy is based on the constant creation of new knowledge, technological development, and effective

commercial conditions. The global crisis contributes to the emergence of innovations in various fields of management; thus, it has significant potential not only for negative events but also for updating the technological base and restructuring the world economy. Proper use of this potential will help strengthen the country's position in the global economy.

The functioning and development of the innovative economy are determined by different groups of factors. The first group includes factors that determine the existence of any economic system. We can consider these as the main basis of economic activity. The second group includes factors that determine the quality characteristics of the current economic system. In this case, we can distinguish the factors that affect the formation and efficient operation of the innovative economy. Such factors include natural and climatic factors, which are primarily related to the country's resource potential. Also, the relationship between the quantitative and qualitative characteristics of this potential and the level of innovative activity of the economic system is multifaceted. Rich natural resources often determine the export-raw materials orientation of economic development. The ability to quickly obtain super profits from the natural environment reduces innovation activity within the country.

Economic and production factors are the basis of the entire production process in the country's economy. These include means of production, techniques and technologies, forms of organization of labor and production, education of employees, level of professional qualifications, and others. All these factors are directly related to the quality characteristics of the production process, reflecting its productivity, safety, environmental friendliness, and efficiency as a whole. On the other hand, the level of production in the economy directly depends on the new management methods used, the qualities of the labor force, and the innovation of the technological process. But also, we can attribute creative activity, life values, intellectual abilities, and cultural attitudes to the set of socio-cultural factors that influence human behavior.

Directions for developing innovative economy

It is an undeniable fact that innovative development has become the main factor in the growth of national wealth in countries. The creation of an innovative economy should be based on the penetration of innovative approaches into all areas of human life, the use of highly accurate and knowledge-intensive technologies, the intellectual and creative components of human capital, and the expansion of the role of science and education in production processes. Public-private cooperation can have a positive

effect on the formation and development of an innovative economy. The specific nature of interaction between public and private sectors in an innovative economy is the combination of participants' strengths to direct scientific results toward innovation. The advantage of this tandem is the redistribution of risks and costs for creating products in high-technology fields. Additionally, the partners themselves determine the optimal conditions for cooperation to create a national innovation system. When using public-private cooperation tools in the context of forming an innovative economy, each party pursues its own goals.

I.I. Smirnova notes that one of the most important socio-economic determinants for activating innovative development in any country under modern conditions of a globalized economy is human resources and their quality. The main qualitative characteristics of human resources are education, intelligence, professional experience, social mobility, and the ability to innovate in creative activities and social life. The economic and innovative development of the region and the country as a whole depends on human capital and its development. The level of sustainable development of human capital is determined by knowledge, qualifications, work experience, ability to make decisions in complex non-standard situations, creativity, health level, and professional experience (Smirnova, 2019, p. 198).

The main global trend in forming the modern type of sustainable economic growth is the transition to an innovative economy based on scientific knowledge, information technologies, and intellectual resources. For this transition to be effective, all factors of production must be used efficiently. The trend of continuously increasing the role of science and education, knowledge and skills of human resources, and innovation is a characteristic feature of development in the world's leading countries. In these countries, innovations and effective production technologies are created, high-quality products are produced, production management organization is improved, and labor productivity and GDP increase. An innovative economy based on scientific knowledge and innovation, which is the main factor of competitiveness, along with understanding new technology systems and their practical application possibilities, plays an important role in the national management system. In an innovative economy, under the influence of scientific and technical knowledge, traditional areas of material production are radically transformed into new areas, and their technological basis changes. The orientation of state policy toward an innovative economy allows full use of information technologies, human capital, and production factors.

A number of researchers have concluded that the goal of innovation policy in leading countries is to stimulate the development of science and technology, to increase innovative activity that ensures the competitiveness of national products in the world market and the country's defense capability, and contributes to improving the environmental situation. They note that based on these goals, the state should determine priority directions for developing innovative activity (Kovtunen et al., 2017, p. 13).

To achieve high-quality and sustainable economic growth and to strengthen the country's position in the globalized world economy, it is necessary to develop and implement advanced directions of innovative economic development and a legislative framework in this field. To stimulate the development of an innovative economy, there should be necessary regulatory mechanisms, as the application of such regulatory instruments can ensure the growth of the country's national wealth. Economists have identified three main interrelated mechanisms for this:

1. Efficient allocation of resources.
2. Accumulation of capital.
3. Application of scientific and technical progress achievements.

Based on the experience of developed foreign countries, N. Abbasov notes that innovative economic development is mainly focused on the efficient use of science-intensive technological processes. According to his conclusion, in countries such as the United States, Germany, Japan, and others, about 70-75% of exports are high-tech products with a high level of scientific input (Abbasov, 2022, p. 51).

Osmanov (2020, p. 402) considers it appropriate to increase efficiency for developing the innovative economy by focusing on four main areas: innovation, investment, infrastructure, and institutions. To achieve this, he proposes attention to the following tasks:

1. Improving the quality and efficiency of law enforcement.
2. Radical reduction of administrative obstacles.
3. Implementation of tax incentives to stimulate private investment in human capital and innovation.
4. Providing strong financial support.
5. Modernization of all infrastructure areas.
6. Formation of an effective national innovation system.

State support is the main condition for the development of an innovative economy. The main directions of state support for developing an innovative economy should be:

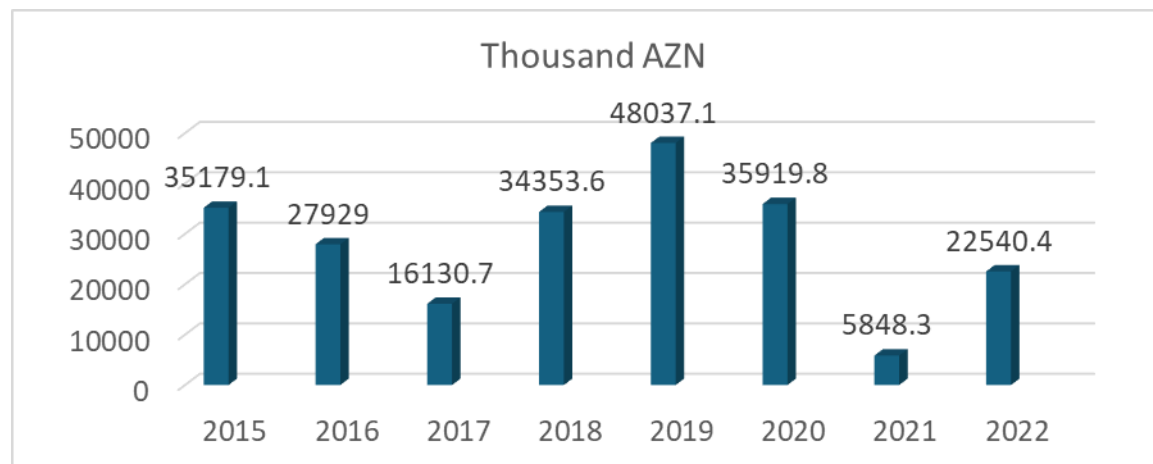
- Supporting increased innovation activity that ensures greater competitiveness of local products through the development of scientific and technological advances and production modernization;
- Focusing on comprehensive support for improving innovations that form the basis of the modern technological order;
- Supporting the development of innovative activity in the country's regions, facilitating interregional and international technology transfer, promoting international investment cooperation, and protecting the interests of national innovative entrepreneurship.

The formation of a dynamically developing and effective innovative economy can be achieved through state regulation of innovation processes. The state regulates these processes through both direct and indirect methods. Direct funding of research, development, and innovation projects from budget funds occupies a central place in the state regulation system.

The success of innovative activity is primarily determined by its organizational forms and methods of financial support. The sources of financing for innovative activity can include the state, enterprises, financial and industrial groups, small innovative enterprises, investment and innovation funds, local governments, and individuals, among others. All these entities participate in the economic process and contribute to the development of innovation in various ways.

The main field of application for innovations in Azerbaijan is the industrial sector. To understand the current state of innovation financing in the industrial sector, a comparative analysis of the costs incurred for it should be conducted (Figure 3).

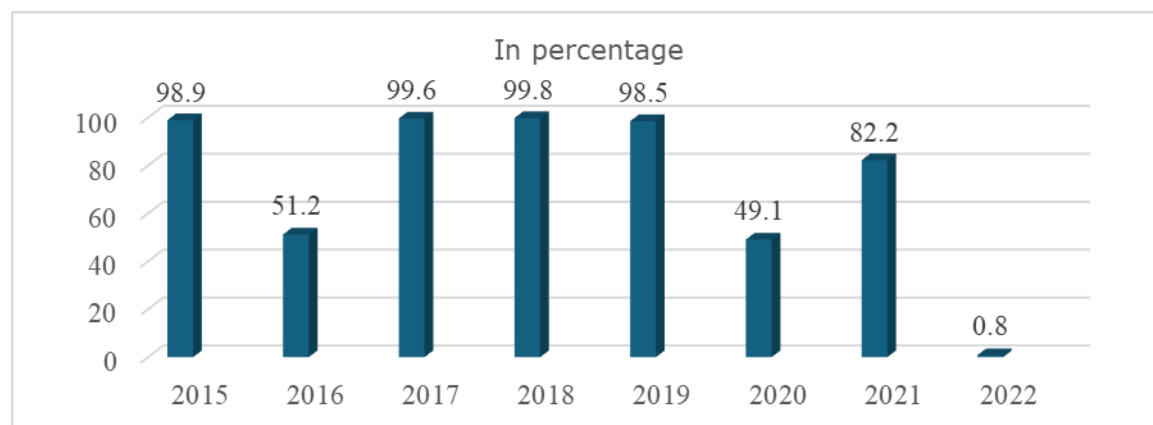
Fig 3: Expenditures on technological innovations in the Azerbaijani industry (Statistical indicators of Azerbaijan, 2023).



Source: own elaboration.

From Figure 3, we see that spending on technological innovations in Azerbaijan's industry has increased unevenly. In 2019, 48,037.1 thousand AZN was spent on technological innovations. In 2022, 22,540.4 thousand AZN was spent on technological innovations, of which 0.8% came from the enterprises' own funds, and the remainder came from other sources. However, during the other years under review, expenses for technological innovations funded primarily by the enterprises' own resources dominated the total expenses, as we can clearly see in Figure 4.

Fig 4: Special weight of expenses incurred on technological innovations in industrial enterprises in total expenses.



Source: own elaboration.

The development of an effective partnership between the state, business, and academic circles can contribute to solving the problem of financing an innovative economy. As is known, private firms are reluctant to invest in expensive and risky fundamental research. Competition between private firms begins only after the results of fundamental research have been obtained. However, this situation can change with state support during the stage of fundamental research. For instance, in Japan, the initial research stage is financed by the government, while private firms, aware of government support for the project, invest their capital in further development. At the final stage, the project is implemented entirely through the financial resources of private companies.

R.I. Oleksenko and G.V. Ortina discussed the important role of banks in financing an innovative economy. Their main idea is that banks can provide loans at all stages of an innovation's life cycle. The interest rate on a loan for innovative activities should be determined based on the efficiency of the innovations, their payback period, alignment with scientific and technical development priorities, and the degree of risk. The bank can be a co-owner of the results, recovering its costs through profits from the use of the innovation. Banks can also participate in organizing a comprehensive assessment of innovation by engaging highly qualified specialists. Additionally, the bank can provide information, mediation, consulting, scientific-technical, advertising, forecasting, and business-related services to innovative enterprises. The bank may also act as an organizer of financial projects and joint ventures on a shareholder basis (Oleksenko & Ortina, 2018, p. 174).

In recent decades, the competitiveness of national economies has largely depended on how frequently and effectively innovative solutions are developed, implemented, and commercialized within the country. Experts note that small innovative enterprises have been the primary source of innovation for more than 50 years. Globalization, interregional capital movement, and the improvement of financial and legal institutions have led to the emergence of new types of financing for such enterprises, with venture capital occupying a primary role. Venture financing is a long-term, high-risk investment in the capital of young companies based on innovation in various forms. The venture investor acts as one of the main players in venture activity and can be an individual or legal entity that invests in innovative companies independently or through venture funds, exercising strategic control over the investment's use. Other participants in venture activity may include:

- venture management companies,
- venture enterprises, and
- venture funds (which collect funds from various investors).

Venture capital under modern conditions:

1. Promotes national wealth growth by increasing the income of innovative enterprises,
2. Enables the creation of new jobs across different economic sectors,
3. Supports the development of innovative entrepreneurship and related economic areas,
4. Increases demand for the results of intellectual activities,

5. Facilitates the creation and development of new economic sectors, and
6. Enhances the investment attractiveness of the country and its regions.

Thus, venture capital can accelerate the process of building an innovative economy and transitioning to a new technological structure. For the development of an innovative economy, not only is financial support essential, but also the creation of advanced production technologies, inventions, new industrial models, and trademarks within the country, which result from a more efficient use of financial resources (Abbasov & Ahmadova, 2022, p. 11). Today, a favorable innovation environment serves as both a powerful catalyst and a reliable support for a highly efficient economy. One of the key conditions for business success in a competitive environment is the ability to continuously apply innovations and new technologies to meet the population's needs. A primary challenge in the innovative development of the economy is the formation of practical skills and abilities among engineering and technical staff as well as the workforce. Training highly qualified specialists is impossible without cooperation between the industrial sector and educational institutions. The formation and development of human capital through production activities are driven by the speed of scientific and technical progress and innovation.

CONCLUSIONS

For the development of an innovative economy, several key tasks must be addressed. Firstly, it is essential to create a nationally competitive innovation system. This includes expanding domestic demand for innovations in various fields such as management, product development, marketing, and technology. Additionally, strengthening the education sector and enhancing the quality of both fundamental and applied sciences are crucial steps. Developing modern infrastructure—covering areas like transportation, information, management, and logistics—is another vital component, along with acquiring up-to-date statistical data on the state of innovation.

To foster an innovative economy and enhance its contribution to national wealth, focus must be placed on several specific areas. One of the primary goals is to accelerate the process of innovation, which requires large-scale investments in human capital. Although these investments take time to yield results, they are foundational for the transition to an educational system aligned with the demands of a modern innovative economy. Supporting young talents in research and helping them integrate into the scientific and innovative environment is critical for long-term growth. In this context, emphasis should be placed

on four main areas: institutions, infrastructure, innovation, and investments.

An effective national innovation system should be developed, built on the principle of public-private cooperation. The oil-gas, petrochemical, fuel-energy, mining, and agricultural sectors should be prioritized for development to support broader economic growth. Furthermore, industries across all sectors must be modernized, with outdated techniques, technologies, and machinery being updated to remain competitive. In terms of physical infrastructure, it is necessary to reconstruct and modernize roads, railway stations, ports, power plants, and communication systems to enhance the overall economy.

Equally important is the development of innovation infrastructure, which plays a crucial role in boosting economic growth and improving the living conditions of the population. The experiences of leading countries show that those with a robust innovation infrastructure perform better in global competition. To ensure the efficiency of the innovative economy, these infrastructures must function optimally. Additionally, the development of the financial and credit sector is crucial for addressing the financing challenges faced by innovative enterprises.

By focusing on these areas, it is possible to cultivate a dynamic and innovative economy that will contribute to an increase in the nation's wealth.

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