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Analytical Prediction of Scientific Signs of Innovative Economy in the Context of Global Economic Integration

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In recent years, the global economic situation has witnessed a significant shift towards innovation-driven economies, emphasizing the pivotal role of technological advancements and scientific development in driving growth and competitiveness. This article presents an analytical framework for predicting the scientific signs of an innovative economy within the context of global economic integration.

Keywords: Innovative economy, Innovative Integrity, Innovative Infrastructure, Innovative practice

The current stage of development of the world economy has led to the understanding that the limit of the use of the planet's resources has come. At the same time, without a resource base, economic growth and ensuring the guarantee of social security of the population is impossible. Environmental issues come to the fore. Maintaining the required level of human health, as well as preserving the necessary reserves of natural resources, require new approaches in the management of the economy of various countries. Now a business entity needs a combination of commercial success, application of the latest scientific knowledge and technologies. In addition, compliance with the modern requirements of society increases the level of competitiveness of the enterprise and strengthens its position in the market. The innovation economy is built on three components:

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- business system;
- technical and technological developments;
- systems of science and education.

Innovation is the result of inventive activity, expressed in an improved good, either in a qualitatively new product, or in an innovative technology that can be used in human social life. Innovation occurs during innovation, which is a process aimed at developing new solutions, as well as their implementation in practical applications. This type of activity expresses a set of scientific, financial, technological, organizational measures that allow expressing the accumulated knowledge in a material product. The entire value chain is built on the innovation process. It includes all stages of creating a product until its implementation.

Thus, the innovation economy is an economic system based on technology. It is based on innovation, new knowledge and its implementation in the practical life of society.

The economy of a society is innovative if in a society [1]:

- any individual, group of persons, enterprises anywhere in the country and at any time can receive, on the basis of automated access and telecommunications systems, any necessary information about new or known knowledge, innovations (new technologies, materials, machines, organization and management of production, etc.). etc.), innovation activity, innovation processes;
- modern information technologies and computerized systems are produced, formed and available to any individual, group of persons and organizations, ensuring the implementation of the previous paragraph;
- there are developed infrastructures that ensure the creation of national information resources in the amount necessary to support the

constantly accelerating scientific and technological progress and innovative development, and the society is able to produce all the necessary multifaceted information to ensure the dynamically sustainable socioeconomic development of society and, above all, scientific information;

- there is a process of accelerated automation and computerization of all spheres and branches of production and management; radical changes in social structures are being carried out, which result in the expansion and activation of innovative activity in various fields of human activity;
- benevolently perceive new ideas, knowledge and technologies, are ready to create and introduce into wide practice at any necessary time innovations of various functional purposes;
- there are well-developed innovation infrastructures capable of promptly and flexibly implementing the innovations required at a given time, based on high production technologies, and deploying innovative activities; it must be universal, competitively carrying out the creation of any innovations and the development of any industries;
- There is a well-established flexible system of advanced training and retraining of professionals in the field of innovation and innovation, effectively implementing comprehensive projects for the restoration and development of domestic industries and territories. The basic concepts of the innovation economy are innovation, innovation activity, innovation infrastructure. What are these concepts, what is their content and scope? Let's take a brief look at these concepts, because the tactics and strategy of forming an effective innovative economy in the country largely depend on their correct understanding.

Innovations, innovative activity, innovative processes are concepts that currently have the most diverse and wide interpretations [2].

The development and extension of these concepts to processes related to everything new, including new ideas and inventions, new scientific achievements, new knowledge and technologies, new results of fundamental and exploratory research work, etc., are generated by everyday notions and a mixture of two concepts: innovative and new. A broad interpretation of innovation activity as new covers everything that is understood as scientific and technological progress, mixes scientific and innovative priorities, gives rise to false ideas about the same requirements for infrastructures that ensure scientific or innovative development. To substantiate this thesis, we will proceed from the following understanding of scientific and technological progress - it is advisable to conditionally divide scientific and technological progress into two main interrelated and complementary components: a component of scientific and technological achievements and a component of industrial and technological achievements. In the first case, the results of scientific and technological progress are scientific achievements - new knowledge, new scientific and technical ideas, discoveries and inventions, new technologies based on fundamentally new physical and chemical-biological principles.

In the second case, the results of scientific and technological progress are production and technical achievements - innovations, the creation of which involves:

professional purposeful development and bringing the results of scientific and technological achievements to the creation of new technologies, new systems, machines, equipment, new methods of organizing and planning production, etc.

- practical implementation of the created results of production and technical achievements to the consumer either through the market or through the "order - execution" mechanism;

– ensuring the effective use and operation of the created innovative product;

- research and obtaining new scientific and technological achievements (if they are not available) necessary for the creation and implementation of innovations demanded by the market or the customer (we will call them innovation-oriented scientific and technical achievements).

From the foregoing, it follows that innovation activity should be understood as the activity of a team of people aimed at the implementation in public practice on a turnkey basis of production and technological achievements - innovations, the application of existing advanced technologies, systems, machines and equipment based on the use and implementation of scientific and technological achievements. domestic and world science and technology. It should ensure the elimination of the gap between the existing volume and the level of already obtained and tested scientific and technological achievements and their application in developing (created) enterprises [3].

It follows that the saturation of innovation activity is the most important condition for the formation of an effective innovation economy. The effectiveness of innovation activities is largely determined by the innovation infrastructure. Therefore, the innovation infrastructure is the basic component of the innovation economy, the innovation potential of society. What is the innovation infrastructure, why is it the basic component, the foundation of the innovation economy? The innovation infrastructure is the main toolkit and mechanism of the innovation

economy; it, as an "Archimedean lever and fulcrum", is able to raise the country's economy to a very high level. Based on this understanding, we see the innovation infrastructure as a set of interrelated, complementary production and technical systems, organizations, firms and relevant organizational and management systems that are necessary and sufficient for the effective implementation of innovative activities and the implementation of innovations. The innovation infrastructure predetermines the pace (speed) of the development of the country's economy and the growth of the well-being of its population. The experience of the developed countries of the world confirms that in the conditions of global competition in the world market, the one who has a developed infrastructure for the creation and implementation of innovations, who owns the most effective mechanism for innovation, inevitably wins. Therefore, for the effective functioning of the country's innovation economy, the innovation infrastructure must be functionally complete. This means that it should have a set of such properties that should contribute to the full implementation of engineering technologies for the creation and implementation of innovations across regions and the country. It is our deep conviction that the mentioned collection should contain a set of the following properties:

−distribution across all regions in the form of innovation and technology centers or engineering firms that can locally solve the tasks of a functionally complete innovation cycle with the delivery of an innovation activity object on a turnkey basis;

− versatility, which makes it possible to competitively ensure the implementation of a turnkey innovative project in any area of the manufacturing or service sectors of the economy;

− professionalism, which is based on conscientious and high-quality service to the customer or consumer;

- constructiveness, which is ensured by focusing on the final result. The development of an innovative project should be accompanied by a continuous analysis of the final results. The availability of reliable feedback on the achieved final results allows us to develop constructive priorities directly in the process of developing innovation activity and thereby provide a closed innovation management system according to the scheme: innovation - investments - monitoring of final results - investments, etc.;

− high level of scientific and technical potential;

− staffing, first of all, by the leaders of innovative projects and the possibility of continuous renewal and improvement of the personnel of the innovation infrastructure;

− financial security (availability of working capital);

- a high level of tools that accelerate the receipt of the final result;

- flexibility that ensures the adaptation of the innovative infrastructure to changes in market requirements and external conditions.

As the results of research, as well as the experience of the developed countries of the world, show, the main core of the innovation infrastructure, the most adequate mechanism for the implementation of scientific and technical innovations - innovations, is the infrastructure of innovative engineering centers (firms, enterprises), which should accumulate the best domestic and foreign knowledge and technologies and act as a system integrator and guarantor for the successful implementation of an innovative project for the customer and ensure coverage of the full innovation cycle: from studying the market situation for the final innovative product, a feasibility study of the innovative project and its development to the

complete delivery of equipment, its system integration, turnkey delivery with staffing and subsequent service maintenance. Let us dwell on the disclosure of the content of some of the properties of the innovation infrastructure listed above. Research and monitoring of market needs, the need for constant and prompt updating of manufactured innovative products require the introduction of flexible automation to be of paramount importance in the innovative economy. Integrated flexible automation with extensive use of information technology and computerized systems is the core of the innovation economy. Therefore, the foundation of all structural transformations of the region's economy, the basis of the regional innovation infrastructure should be based on automated high technologies and computerized systems with an end-to-end "paperless" cycle: "design - production - control - implementation".

It follows that the most important regional problem of the formation and development of an innovative economy is the solution of scientific and methodological and economic research, No. 1, 2023 myeconomix.ru organizational and technological issues related to the development, creation and development of automated integrated design and production systems that automatically "paperless" cycle and combining in one system innovative research, development work, processes of technological preparation and production planning, ultimately aimed at creating innovative products. Moreover, in such systems, three main stages characteristic of the creation of a new knowledge-intensive system should be automated in an end-to-end chain: designing innovations; production and assembly of the prototype of a new science-intensive system; commissioning and testing of a new science-intensive system.

An important problem that requires its actual solution in the conditions of an innovative economy is the anticipatory creation in the regions of an effective mechanism for information support of innovative activity. The effectiveness of this mechanism largely depends on the quality of continuous socio-economic monitoring of the regions. Such monitoring, in our opinion, should cover the observation, analysis, assessment and forecast of the economic, social, environmental, scientific and innovative situation in the region in order to prepare management decisions and recommendations aimed at improving and developing innovative activity. Monitoring both innovative processes and more general processes of structural transformation of the economy in the region aims the regions at the effective management of these processes. Therefore, one of the main functions in the field of information support of the innovative economy should be the function of automated monitoring of structural transformations in the region. In this regard, it seems appropriate to create automated centers for innovation and information support in the regions to constantly maintain the updating and operation of innovative data and knowledge banks. At the same time, it is necessary to proceed from the following provision: the subjects of innovation activity need, first of all, information that would contain appropriately ordered technical and economic, market and commercial, statistical information, information about the characteristics of industrial products, technologies, machinery and equipment, materials, types of services, etc. And here an important role belongs to the marketing of innovations and innovative activities at the enterprises of the region as an integral part of the information support of innovative ergonomics.

Innovative marketing, representing a set of measures to study all issues related to the process of implementing innovative products of enterprises, namely: the study of the consumer and the study of the motives of his behavior in the market;

− research of an innovative product and channels for its implementation; - studying competitors and determining the competitiveness of their innovative product;

- study of the "niche" of the market, in which the enterprise has the best opportunities to realize its advantages - should become one of the leading structures of the automated integrated information system.

The creation of such a fundamentally new information structure at the regional level of industries and enterprises - an automated integrated information system focused on the integrated information support of the innovative economy, will contribute to the successful solution of the most important task of the innovative economy of the state: ensuring the competitiveness of enterprises, industries, regions and the country as a whole. The formation of an innovative economy largely depends on the creation of an effective mechanism for managing the practical implementation of complex innovative projects in the regions. And here one cannot do without state support for innovation processes. The need for financial and legal support for science and innovation, the intensification of innovation activity, the transition to new forms of solving the economic, environmental and social problems of the regions characteristic of the innovation economy, urgently require regional governments to develop a responsible policy in relation to the management and development of innovation activity in the region , to intensify interaction on this issue between regional governments and federal ones. The main form of such

interaction should be scientific and technical programs: state, funded from the federal budget, when priority economic problems are solved on the basis of the scientific and innovative potential of the regions, and regional programs - with shared funding by the state and the region.

For the successful implementation of the regional innovation policy on the formation of an innovation economy, a set of scientific, organizational, and technical measures should be carried out, the main of which, according to the authors, are the following.

1. Development of a concept for the development of innovation activity and innovation infrastructure in the region with the definition of long-term strategic goals and means of achieving them in the framework of the formation of an innovative economy.
2. Development of a program for the innovative development of the region, which should be an address document indicating, in terms of resources, performers and terms, a set of measures aimed at achieving the goals of the innovative development of the region.
3. Inclusion of the main provisions of the program of innovative development of the region in the program of its socio-economic development.
4. Organization of practical activities of local and regional governments for the implementation and adoption of relevant regulatory acts of regional significance, as well as for their implementation of the organizational and information support of this program.

We consider it necessary to emphasize the following provision. In the context of the development of innovative activity (in a society with an innovative economy), the attitude towards the main productive force of society - a person of highly intellectual, highly productive labor - should

completely change. The role of highly qualified specialists in the innovation economy is very important and will constantly grow. Therefore, the training of personnel capable of effectively managing innovation processes, developing and implementing innovative projects is a priority regional and federal problem. In this regard, it should be emphasized that the objective need for innovative development, the formation of an innovative economy requires the development of a new concept of training. It should be based on the following principles: -formation, development and self-realization of a creative personality;

− constant focus on generating promising scientific and technological innovations and finding ways and methods of their practical implementation in innovation;

− orientation towards the training of highly qualified and highly intelligent specialists, system managers of innovation activity;

− consideration of education and training of personnel as an integral part of the production process, and the cost of training personnel - not as a cost for employees, but as a long-term investment necessary for the prosperity of enterprises, industries and regions;

− training in the management of social and psychological aspects of the process of creating high-tech innovations, the use of the creative potential of the team, and the accelerated large-scale implementation of innovative developments into practice;

− creation of a system of continuous training and advanced training of personnel, integrated into the system of production of innovative products;

− cooperation of universities and other universities of the region with leading enterprises of the region implementing innovative projects, and their joint activities in the development of curricula, publication of

textbooks and monographs on innovative technologies, systems of machines and equipment, in the training of highly qualified specialists in new professions and promising scientific and innovative areas.

Innovative practice (the production of knowledge-intensive innovative services in the broad sense) requires working capital. It is almost impossible to get this working capital (for example, a loan) in modern conditions without special support measures. Therefore, at present, the domestic production of innovative services, deprived of working capital, loses the best (knowledge-intensive) projects in the country to foreign firms that use a balanced foreign market to obtain the required working capital. Our research, as well as our analysis of advanced domestic and foreign experience, show that in an innovative economy, in order to eliminate the mentioned drawback, it is necessary to combine innovation and investment functions under a single management. Such an association will increase the interest of performers in the successful implementation of all stages of a single innovation and investment cycle, which can be achieved by focusing all performers on the result:

the responsible delivery of innovative products on a turnkey basis and participation in the implementation and maintenance of created innovative goods and services. An effective mechanism for implementing a single innovation-investment cycle is innovation-engineering-investment centers (firms, enterprises). Such IIS centers will be able to ensure the efficient production of knowledge intensive innovation and investment services already at the expense of their own working capital with subsequent (based on the results obtained) investments in new projects, etc.

Conclusion

It follows from the above that the activation of the formation of an innovative economy is associated with the forced creation of domestic innovation-engineering-investment network infrastructure distributed across all regions.

The scientific analyses have emphasized the interconnectedness between innovation, scientific research, and economic development, highlighting the role of knowledge creation and dissemination in driving sustained growth and competitiveness. It has underscored the importance of global economic integration as a catalyst for fostering innovation through collaboration, knowledge sharing, and resource mobilization among countries.

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