Innovative technologies and financial mechanisms for their stimulation

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Abstract: This article examines the role and importance of scientific research in the creation of mechanisms and methods for financing new technologies for sustainable economic development and their implementation, as well as proposals and recommendations for achieving an effective solution to issues aimed at financing and commercializing the transfer of innovations, which is one of the main factors in economic development.

Keywords: innovation, human capital, innovative activity, inclusive innovative development, innovation transfer, small business, start-up, financing the transfer of innovations, issuance of cryptocurrencies

INTRODUCTION

In the sustainable development of the global economy, the innovative development of small business is recognized as one of the most important scientific and practical directions. Increasing the volume and efficiency of financing the transfer and commercialization of both internal and external innovations has become a crucial task for every country. Indeed, the development of the world economy in dependence on inclusive factors is sharply increasing the importance of financing innovation transfer and commercialization. Today, the results of innovative activity are characterized by rapid and wide dissemination, influencing both the quantitative and qualitative changes in the economies of advanced developing countries. Such changes, reflected in the trends of rising living standards of the world's population, are forcing countries to compete for leading positions in the field of innovation. [1]

This, in turn, requires a sharp increase in today’s scientific and innovative potential, as well as the search for new ways to enhance the efficiency of mechanisms for financing and commercializing the transfer of innovations. Therefore, innovative activity is currently regarded as a key factor in ensuring the sustainable growth of the world’s economies. In Uzbekistan as well, the need to improve the mechanisms of financing the transfer and commercialization of both internal and external

innovations for the development of small businesses further increases the relevance of this issue in the current process of globalization.

REVIEW AND ANALYSIS OF LITERATURE RELATED TO THE TOPIC

Based on the bibliographic analysis carried out on foreign countries, a number of foreign scholars who have contributed to theoretical views, methodological foundations, and development trends in the field of innovations and innovative activities can be included, for example: J. Madsen, R. Solow, P. Drucker, N. Mankiw, J. Schumpeter, Sh. Groh, J. Hauschildt, S. Salomo, and S. Chappell [2]. The existing theoretical and methodological basis in foreign countries has mainly been formed by endogenous and semi-endogenous models of innovative economic growth, as well as models for the development of R&D (Research and Development) and human capital.

RESEARCH METHODOLOGY

At the international level, continuous scientific research is being carried out to achieve effective solutions to the issues of financing and commercializing the transfer of innovations to small businesses. In this regard, scholars in the United States, Western Europe, Japan, Singapore, and the Republic of Korea focus on the methodological and practical significance of such issues, while in the CIS countries, greater emphasis is placed on their theoretical aspects. At present, the most comprehensive scientific study on start-ups is considered to be the *Startup Genome Report*. The national and international systems of innovative development for business entities are being continuously improved on the basis of the results obtained from existing research. It should be noted that the conducted studies have examined issues related to the innovation factor, the establishment of start-ups, and their development challenges mainly at the level of expert surveys. However, specific issues such as increasing the efficiency of financing mechanisms for innovations and their transfer to small business entities, the theoretical perspectives of scholars in the field of innovative activity, trends in innovative development, the relationship between innovations and investments and their impact on economic growth, as well as the improvement of innovation financing systems, have not yet been studied in detail.

Particular attention is being paid to the innovative development of Uzbekistan’s national economy and the improvement of mechanisms for state regulation of innovative activity, enhancing the innovation-investment environment for the implementation of scientific projects and innovative technologies in production, increasing the efficiency and effectiveness of scientific and innovative activities, and creating the necessary conditions for research projects and their results to produce competitive products in national and international markets. In addition, the rapid development of all spheres of society and state life requires the implementation of

reforms on the basis of modern innovative technologies that ensure fast and high-quality advancement of our country on its path to joining the ranks of the leaders of world civilization.

In Uzbekistan, identifying and developing the innovation factor and its sources, which increase production volumes and the competitiveness of the economy, are considered among the main tasks of long-term economic growth. Therefore, a number of relevant regulatory documents of the Republic of Uzbekistan have made the improvement of the financing mechanism for the transfer of innovations to small businesses a necessity.

ANALYSIS AND DISCUSSION OF RESULTS

Since business entities in developed and developing countries must quickly adapt to and adopt new technological innovations in their activities, international competitiveness in Western countries is achieved through the application of the innovation factor.

Within the framework of large-scale reforms being carried out in Uzbekistan, the active investment policy, the innovative activity of the scientific and technical sector, the transfer and commercialization of their results, and the search for improved financing mechanisms have become a necessity. These results must correspond to the goals and requirements of the country's economic innovation development and the financial-credit sector within the context of the state's modern progressive macroeconomic policy. For this purpose, it is necessary to implement the results of scientific research into practice based on state budget funds, the volumes of which are increasing year by year, allocated for modernization projects and the re-equipment of production. To address these issues, it is advisable to rely on the principles of socio-economic systemology and systemic financial engineering. [3]

Without a favorable system of an innovation-investment environment, the transfer and commercialization of innovations cannot be considered a complete solution to the above-mentioned problems, nor even as a significant source of income. The economic benefits of this system, for both the state and society, are formed from the financial activities that emerge during the very process of commercialization of innovations. This system provides scientific-innovative activity entities (SIAEs) and society as a whole with opportunities to commercialize research results, generate a flow of research orders, attract new investments, introduce new technologies, create new jobs, increase the volume and profitability of new high value-added products, and enhance tax revenues to the state budget.

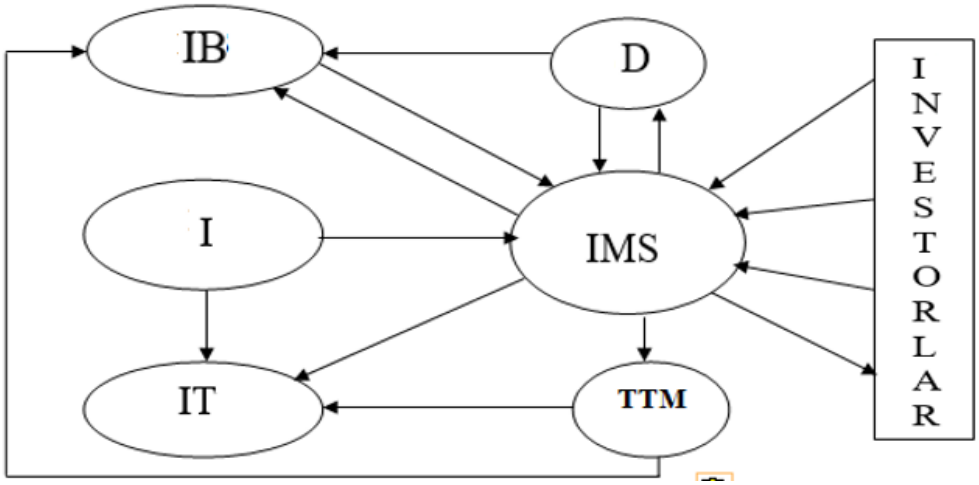
- Among the problems of scientific and innovative activity (SIA) in the field of transfer and commercialization of scientific innovation results, the following can be distinguished:

- Implementation of SIA without considering market demand**.** This problem is associated with incomplete and low-effective management and marketing activities of scientific innovation entities (SIEs) in studying the market and its operations;IIF boshqaruvining ko‘pchilik sub’yektlari raqobat va risklar sharoitlarida ishlashga tayyor emasligi;

- High cost of innovations and outdated methods of accurately assessing their risks;

- The absence of a modern and universal system of innovation-investment support for all types of scientific-innovative activities (SIA), as well as for financing and commercializing innovation transfer projects**.** In this case, the interests of financial institutions, the terms, volumes, and sources of financing do not always align with each other, while the support of SIA and innovations is generally limited by the country’s national policy, state budget, and innovation potential..

Thus, it is necessary to ensure maximum use of existing resources and potential, and to implement the obtained results not only in the form of scientific knowledge but also in various economic forms in the market, through the creation of a new financing mechanism that stimulates the development of a system ensuring a favorable innovation-investment environment in the country. For this purpose, first of all, it is required to establish infrastructure that includes scientific teams and departments generating new scientific knowledge, provides comprehensive services aimed at the commercialization of SIA results, stimulates demand for these results, and incorporates mechanisms for their economic implementation.



1-rasm. Innovatsiyalar transferi va IMO tijoratlanishini rag‘batlantiruvchi moliyaviy mexanizmi

In this case:

IB - Innovation Market;

I - Intellectual Property Rights Holders;

IT - Innovation Demanders (for transfer and commercialization), i.e. Start-up;

IMS - Syndicate financing SIA and the transfer/commercialization of its results (based on Public-Private Partnership);

D - State (the body supporting the SIA of IPR holders);

TTM - Transfer (Commercialization) Consultant and Manager.

Such infrastructure (as shown in Figure 1) should, on the one hand, establish and support close connections with investors (subjects of innovative activity) who may be interested in potential customers, and on the other hand, with production and business entities that are able to formulate tasks, present them to innovators, and act as consumers of the results of scientific and innovative activities. Figure 1 above presents a schematic model of such infrastructure.

In this scheme, D and IMS provide financial, legal, and organizational support to intellectual property rights holders.

IMS (on behalf of investors) must have access to financial resources and, together with I, hold a share (stake) in the IT's equity package.

An important function of D and IMS is to approve state orders for scientific research (fundamental, applied, and innovative) and to study the real demand of the Innovation Market (IM); to maintain a unified state register for the financing and commercialization of SIA results based on monitoring; to act as guarantors in the economic realization of innovations, as well as to provide guarantees for state investment bonds. In allocating state grants, special attention should be given to the protection of intellectual property rights created and transferred during the SIA process.

The state may introduce tax incentives and credits for innovative development. At the same time, a part of excise tax revenues can be allocated to support the innovative development of the economy, since the economic realization of innovation generates additional profit. IMS finances start-up companies with temporary state support, which allows it to refinance its temporary participation shares by issuing and placing special state investment bonds for investors. The state investment bonds guaranteed by IMS are sold to investors, including foreign investors. These bonds are of medium quality and are later converted into IT shares.

CONCLUSION AND RECOMMENDATIONS

To encourage innovations, the right to own, use, and dispose of intellectual property should be granted not to organizations but to the innovators (I) themselves. In addition, the income of innovators from license agreements in the form of fees and interest should not be subject to income tax, and when innovations are contributed to the charter capital of a company, innovators should have the right to receive dividends along with the declared income.

Based on the points mentioned above, the following conclusions and recommendations are appropriate.

All over the world, a decisive role in achieving rapid growth rates in the technological sectors of the economy is assigned to technology transfer. Why does technology transfer play such a significant role? Because in the chain of stages of the innovation cycle, the transfer of technology is considered a “weak link”: on the one hand, it requires a great deal of effort and resources, and on the other hand, it entails considerable risks. In addition, at this stage, the right to make decisions and to own intellectual property rights often shifts within the chain (among the intellectual property owner, investor, and manufacturer). This stage also requires specialists from various fields of knowledge: financiers, patent experts, managers, and marketers. Favorable conditions for SIA, high-quality products, good management, and an effective public and private financing system (IMS) are the keys to success.

Economic growth or innovation-driven growth depends on two factors: internal innovation capacity and external innovation capacity.

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The experience of developed and some developing countries shows that the innovation factor plays a decisive role in long-term economic development. Innovations in a specific field not only increase the efficiency of that sector but also produce a multiplier effect across the entire economy.

It should be emphasized that the tendency to finance integration of scientific research, education, and production reduces the time for introducing scientifically grounded products - from fundamental research to experimental and engineering production. In this process, higher education institutions play a key role as generation centers based on new science and science-driven business. Thus, promoting innovation transfer to regional production through science, technology, and financial instruments is of great importance for the development of the real sector.

Global experience in innovation transfer shows that the role and volume of quality financing of science are increasing in the world economy. In the USA, the European Union, and Japan, up to 70-90% of GDP growth has been achieved through the introduction of innovations into the economy. International technology transfer, in turn, has become a major source of export revenue [5].

The implementation of the above recommendations and proposals will contribute to the effective formation of the national innovation development system, which will ensure the creation of a favorable business, investment, and innovation environment in Uzbekistan.

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