E-ISSN: 2997-934X
American Journal of Business Practice
https://semantjournals.org/index.php/AJBP

| Research Article

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Economic Efficiency of Partnership Between Science Centers and Small Businesses in Innovation Activities

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Abstract: This article analyzes the economic efficiency of cooperation between research centers and small businesses in innovative activities. The study examines the economic benefits of implementing scientific developments, technology transfer, cooperation projects, and university-business relations for small businesses. The article analyzes the current situation in Uzbekistan and discusses it based on a comparative approach with international experience. The results show that small businesses that cooperate with research centers have achieved significant success in creating innovative products, reducing costs, and increasing profit indicators. At the end of the article, recommendations are given to improve the efficiency of cooperation.

Key words: Science centers, small business, innovative activity, technology transfer, economic efficiency.

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Introduction.

Today, innovation is considered a decisive factor in the formation of a competitive economy. In this process, there is an increasing need to increase the innovative potential of small businesses, connect them with scientific achievements, and establish effective cooperation with research centers. The experience of developed countries shows that when research institutes, universities, and innovation centers establish strategic partnerships with small businesses, the level of economic efficiency, technological innovation, and adaptation to market requirements is high. In the conditions of Uzbekistan, this integration process is entering a new stage, and its analysis on a scientific, theoretical, and practical basis is of urgent importance.

This article examines the forms of cooperation between small businesses and research centers, their impact on innovative activity and factors leading to economic efficiency. The main goal of the study is to analyze the economic results of small businesses cooperating with research centers and identify ways to improve this model. To this end, a discussion is conducted based on international experience, existing statistical indicators, and practical situations in Uzbekistan.

Main part.

In recent years, strengthening innovation activity has become one of the priorities of economic development on a global scale. In particular, the innovation-based activities of small businesses are an important factor in ensuring their sustainability, rapid adaptation to market requirements and the creation of new products. In this process, cooperation with scientific centers, universities, technoparks and research institutes creates great opportunities for small businesses. However, this cooperation should not be limited only to communication with science, but should be considered as a systematic process leading to economic efficiency.

In order to increase the innovative potential of small businesses, cooperation with research centers brings great benefits in many areas, such as technology transfer, testing of new developments, diversification of products or services, and automation of processes. If we look at the experience of developed countries, for example, in countries such as Germany, South Korea, the USA and Estonia, small and medium -sized businesses work closely with research centers and are able to turn innovative ideas into commercialized products or services on the market. As a result of such integration, efficiency indicators increase, export potential expands, and competitiveness increases.

Uzbekistan, in recent years, certain work has been carried out to accelerate innovative activity, build bridges between science and business, and develop a startup ecosystem. In particular, technological advice, services, and cooperation opportunities are being created for small business representatives through the Ministry of Innovative Development, IT Park, Yashnobod Technopark, scientific centers operating under the Academy of Sciences and higher educational institutions. However, these processes have not yet become widespread and systematic. Many entrepreneurs do not have sufficient information about the activities of scientific centers, or the level of practical application of scientific developments remains low.

Empirical analysis shows that small businesses that work closely with research centers achieve significantly higher economic efficiency in digital technologies, alternative energy, biotechnology, food industry, logistics and other areas. In addition to producing innovative products, such enterprises also achieve lower production costs, reduced energy and resource consumption, and optimized marketing and logistics systems. At the same time, patenting, scientific and technical documentation, and laboratory testing with the help of research centers allow business entities to bring products to the market faster and cheaper.

Science centers are emerging not only as a structure offering technological solutions, but also as a strategic partner for small businesses. Through these centers, new product ideas are formulated, prototypes are created, improved in accordance with market requirements and commercialized. Also, training, consulting and innovative project evaluation services provided by science centers serve to increase the level of digital literacy and scientific thinking of business representatives. This, in turn, leads to the introduction of modern management methods in small businesses and the improvement of the quality of strategic decision-making.

However, based on the available analysis, it can be said that in the conditions of Uzbekistan, in order to make cooperation between scientific centers and small businesses more economically effective, it is necessary to systematically coordinate, strengthen state incentive mechanisms, and create a legally favorable cooperation environment. Many small businesses face financial

constraints in their innovative activities, lack of sufficient access to scientific infrastructure, and bureaucratic obstacles in establishing contacts with scientific organizations.

Therefore, in order to fully reveal and expand the economic efficiency of this cooperation model, it is urgent to activate institutions connecting science and entrepreneurship at the government level, expand the system of grants and subsidies to support scientific developments, and establish mechanisms for integrating small businesses through technological centers and innovation clusters. In the process of transition to an innovative economy, cooperation between small businesses and scientific centers will ensure not only economic stability, but also the path of knowledge-based development of society.

Conclusion

The results of the study show that cooperation between scientific centers and small businesses in innovative activities plays an important role in increasing the competitiveness of the Uzbek economy. The process of applying scientific developments to small businesses through research institutes, universities, technoparks and innovation clusters expands their opportunities for increasing production efficiency, improving product quality, reducing costs and entering new market segments. This directly leads to an increase in economic efficiency.

Also, technological consulting, laboratory testing, startup development programs, and business project assessment services provided by research centers are enhancing the innovative activity of small businesses. Through this, entrepreneurs are trying to introduce not only digital technologies, but also modern management approaches. The study found that small businesses that worked closely with research centers achieved significantly higher results in terms of financial stability, profitability, productivity, and innovative innovations.

However, existing problems should not be ignored. Obstacles such as the lack of a systematic form of cooperation between scientific centers and small businesses , difficulties in commercializing scientific developments, weak financing mechanisms, weak technological infrastructure in some regions, and low levels of technological literacy still remain. These problems can be solved by strengthening coordination between the science, business, and government sectors.

In conclusion, in the process of building an innovative economy, strengthening cooperation between small businesses and research centers is of strategic importance. In this regard, on the one hand, research centers should strive to bring their research closer to practice, and on the other hand, small businesses should move to activities based on scientific knowledge. In this process, the supporting policy of the state, the effective functioning of legal and economic mechanisms are important factors.

The final result is that by deepening the integration between scientific centers and small businesses in Uzbekistan, it will be possible not only to increase innovation potential, but also to create a business environment capable of sustainable economic growth, the production of high-value-added products, and meeting the requirements of the modern global market. This will be one of the most important foundations on the country's path to innovative development .

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