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PROSPECTS FOR THE DEVELOPMENT OF INNOVATIVE ACTIVITIES OF THE PHARMACEUTICAL INDUSTRY OF THE REPUBLIC OF UZBEKISTAN

Gulyamova Nigora Khabibullaevna*; Usmanova Sabohat Sobidqizi**

*Senior Lecturer,
Department of "Economics and Management of Industry",
Tashkent State Technical University,
Tashkent, UZBEKISTAN
Email id: nigora.gulyamova@gmail.com

**Assistant,
Department of "Economics and Management of Industry",
Tashkent State Technical University,
Tashkent, UZBEKISTAN
Email id: sabohat.sobirova@gmail.com

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ABSTRACT

The article discusses the innovative activities of the pharmaceutical industry of the Republic of Uzbekistan, the creation of a pharmaceutical cluster through the introduction of innovative solutions and high technologies using international experience.

KEYWORDS: *Pharmaceutical Industry, National Economy, Innovation Activity, Pharmaceutical Cluster, Innovative Solutions*.

INTRODUCTION

With the accelerating process of economic globalization, international competition is becoming increasingly fierce, and international political and economic models are changing.

Thanks to major changes, innovation has become the key to the success of industries and enterprises in various countries. The transformation of the basis of national competitiveness will shift from the intensive consumption of natural resources to the creative use of knowledge resources.

Today, in a highly dynamic environment, which includes numerous factors and phenomena, such as a decrease in solvency, a decrease in production volumes, an increase in competition between enterprises, both in the Russian and foreign markets, domestic enterprises should be aimed at the constant introduction of innovations. For the purpose of their effective and sustainable development.

Industrial enterprises need to implement a new policy - innovative, focused on the development of a range of products and services, improving their quality, updating technical equipment, software, etc.

Studies have shown that intensive factors have a fairly significant impact on economic dynamics. Increasing labor productivity and staff qualifications, as well as updating equipment, software and materials and their return is determined by the introduction of innovations.

The attention of researchers has long been directed to finding an effective direction for the development of a production management system with the use of innovations. It is innovations in modern practice that have become a serious means of shaping the development of the enterprise's economy and its pace. The innovative orientation of the enterprise management system sees innovation as one of the most successful tools:

- Achieving the goals of the enterprise;
- Increase in scientific and practical knowledge and search for effective methods of their application;
- Improving the efficiency of the personnel of the enterprise. The process of introducing innovations in an enterprise should become a lever for changing the content and structure of risks, reducing the possibility of new ones, as well as an obstacle to the spread of undesirable consequences. Internal factors of the enterprise can affect the innovative processes carried out at the enterprise. The management system at the enterprise should build an effective organization of innovation risks. It is important that due to various development factors, the sustainability of the enterprise is achieved, both motivational and investment, as well as innovative.

An important point of innovation activity is the stage of searching for new relationships and interdependencies between the indicators of innovations used with the conditions of their production and operation, economic efficiency and technical equipment. It should be noted that the issue of quality and economic efficiency of technical innovations cannot be considered separately. The innovative activity of an enterprise is a complex of ongoing commercial and industrial measures, while the quality of innovations depends on the technical equipment of the production sector. Obviously, the transition to new systems and the production of new types of products is possible only with the introduction of new technologies. The relationship between the implemented technologies and the competitiveness of the enterprise and its activities is seriously traced: the dynamics of technology development, competitiveness and the production of new products and investments in R&D.

As conclusions, it should be noted that the innovative development of the enterprise expands the range and volume of products and services, while improving their quality. Thanks to innovations, it is possible to enter new sales markets and reduce production costs. The introduction of innovations in various areas of activity of a manufacturing enterprise makes it possible to improve it and make it more efficient, adjusting to consumer demand and external factors. Thus, the innovative development of the enterprise is the main condition for increasing the competitiveness and efficiency of its activities.

Establishment of an effective pharmaceutical industry is quite a lengthy, labor-intensive and expensive process. Creating conditions for the localization of pharmaceutical and medical products based on modern technologies in accordance with international GMP standards is one of the main tasks for the development of the pharmaceutical industry of the Republic of Uzbekistan.

The main problem of lagging behind the pharmaceutical industry in Uzbekistan is the lack of diversification of production and the low competitiveness of most enterprises in the industry. It is possible to correct the current situation not only by solving the problems of the industry, but also by searching for new growth points, which requires a comprehensive modernization of the entire pharmaceutical industry. This strategy is based on an approach based on a gradual transition from the production of simple goods to science-intensive and high-tech products by increasing the level of development of production and technology. The process of localization is primarily based on the development of all production, improving the quality of manufactured goods, technological re-equipment and innovative development.

To improve localization processes at pharmaceutical enterprises, it is necessary to optimize all areas of the enterprises' activities. Optimizing manufacturing processes has two goals: improving the finished product and reducing the overall cost of manufacturing it. To achieve these goals, enterprises use modern production equipment, change the concept of work and apply different methods and models.

Innovation is the main driver of growth in the pharmaceutical industry. Pharmaceutical innovations are:

- Innovative medicines, medicines,
- New approaches to drug development,
- Innovative production, technological processes,
- New methods of analysis,
- New approaches to quality assurance and quality control of medicines,
- Open innovation model.

At its core, the growth in the number of innovative drugs ensures the development of the pharmaceutical industry. Demand for medicines is unabated in both developed and developing countries. There are many reasons for this. Among the main ones are the aging of the population in developed countries, the high level of cancer, diabetes, hepatitis, AIDS, diseases of the reproductive system, the emergence of new infections and viruses, the harmful effects of environmental pollution on the health of the population, etc. Therefore, government and business communities are now paying so much attention to drug development.

The path of innovative development of each industry depends on which of the archetypes of industries according to the prevailing type of innovation it belongs to. It is worth noting that the pharmaceutical industry belongs to the scientific archetype, so the path of innovative development is determined by innovations in the scientific field. Scientific innovations are created in the course of fundamental, applied scientific research. It often takes many years of hard work. The emergence of both innovative products (eg active molecules) and innovative processes (eg new industrial technologies) and innovative business models is important for the pharmaceutical industry.

With the ever-increasing cost of pharmaceuticals and a sharp decline in R&D productivity, the pharmaceutical industry is looking for external innovation models in R&D to reduce R&D costs

and increase productivity in drug development. In addition to improving internal research and development, major international pharmaceutical companies are also seeking external resources to accelerate the development of new drugs. In today's world, a new technological revolution is rapidly developing, constantly generating new waves of innovation, and the complexity of products is constantly increasing.

The rapid development of technology and the high degree of environmental uncertainty have made technological innovation an increasingly complex activity requiring extensive technical resources and professional capabilities. Even large companies cannot support research activities at all technological frontiers and keep pace with technological changes. With changes in the global innovation landscape, the “closed innovation” model has become obsolete. Relying on internal resources, especially R&D resources, is already difficult to meet the development needs of enterprises. Closed R&D will create problems for high-risk technological innovations. The enterprise ceases to be an isolated system, and the technological innovation activity of the enterprise is an open and non-linear process of activity. How to use the leverage of internal research and development to capture and share external value, and the ability to integrate internal and external innovation resources are very important for enterprise technology innovation. The open innovation model proposed by Chesbrough, a national expert on innovation management, is a completely new model for managing R&D and innovation, enabling enterprises to solve the innovation dilemma and maintain their competitive advantage. The open innovation model means that in the process of technological innovation, enterprises use internal and external complementary innovation resources to achieve innovation. The essence of openness is the acquisition and use of external innovation resources, with an emphasis on integrating innovation resources within and outside the enterprise. Open innovation can widely absorb fresh ideas from everyone, accelerate the pace of enterprise innovation, and better seize fleeting market opportunities. In an open innovation system, technological innovation will no longer be a simple linear process, but will become a complex feedback mechanism that needs to be coordinated with other organizations (users, suppliers, competitors, unrelated companies, universities, innovation in interaction and mutual influence of research and development). institutes, consulting firms, governments, etc. External knowledge and technology are very important to fill the knowledge gaps in the internal research projects of an enterprise, and the ability to effectively use and integrate external knowledge is the source of an enterprise's competitive advantage. Enterprises can economically and efficiently obtain technologies suitable for their business operations, through joint research and development, the purchase of external technology licenses, technology mergers and acquisitions, etc., which reduces the costs and risks associated with technological innovation.

Today, an important condition for the dynamic development of the republic is the accelerated introduction of modern innovative technologies into the economy. The pharmaceutical industry is one of the strategically important and rapidly developing sectors of the economy. Pharmaceutics is considered to be a high-tech and science-intensive production process due to the fact that it is the level of provision of the population with medicines that is the main indicator of the social development of society and an indicator of well-being. Modernization of the pharmaceutical industry is one of the priorities in the country. The reform of the pharmaceutical industry is designed to help ensure the country's drug safety, modernize the pharmaceutical sector, create new science-intensive and high-tech industries, increase the export of

pharmaceutical products and services, stimulate advanced scientific and technological developments and minimize dependence on foreign markets. In order to organize the production of innovative and high-quality medicines, medical devices and medical equipment, meet the demand of the population, ensure the training of pharmaceutical industry specialists based on international educational standards and in popular specialties, the consistent integration of pharmaceutical education into the system of the international scientific community, as well as further development In the pharmaceutical industry in the Republic, the Decree of the President of the Republic of Uzbekistan dated January 28, 2020 No. PP-4574 was adopted on the creation of an innovative scientific and production pharmaceutical cluster in the Zangiati district of the Tashkent region « Tashkent Pharma Park ".

Industrial enterprises play an important role in ensuring economic stability, maintaining existing and creating new jobs. Uzbekistan's transition to a new stage of development shows that the outdated material and technical bases of industrial enterprises have a negative impact on the results of their activities. The reforms taking place in the national economy show the unsuitability of enterprises for an innovative development model. An important factor in increasing the competitiveness of enterprises is the organization and conduct of innovative activities. It is known that innovations are one of the main factors of intensive economic growth.

The innovative development of industrial enterprises contributes to the development of both enterprises and the economy as a whole. The introduction of modern advanced technologies into production will lead to an increase in the efficiency of the reproduction process, an improvement in the quality of economic potential, an increase in the competitiveness of enterprises, as well as an increase in GDP. A serious problem is the outdated management system in the economy, the inactive implementation of innovative ideas.

In order to accelerate the development of the country on the basis of modern achievements of world science, innovative ideas, developments and technologies, as well as the consistent implementation of tasks, the Decree of the President of the Republic of Uzbekistan No. UP-5544 dated September 21, 2018 “On approval of the innovative development strategy of the Republic of Uzbekistan for 2019- 2021".

An analysis of the current state of the pharmaceutical industry of the republic indicates that the pharmaceutical industry is "catching up" in relation to the global industry and has a number of main problematic aspects:

- Inability to meet the needs of citizens in medicines (drugs);
- The unstable state of the process of development, production and promotion of pharmaceutical products;
- Its inadequacy to changes in the internal and external environment. the presence in the portfolio of domestic manufacturers of a large number of obsolete, as well as low-margin generic drugs;
- Lack of investment in research programs and a small number of developments of new innovative drugs;

- Insufficient organization of work on the introduction of international standards at domestic enterprises ;
- Shortage of highly qualified personnel in the domestic pharmaceutical industry.

These problems hinder the development of the domestic pharmaceutical industry and determine its unstable state at the present stage.

One of the promising directions for the strategic development of the pharmaceutical industry is the creation clusters that allow organizing a full-cycle production of medicines in a certain territory, as well as increasing the scientific and human potential of the industry. Adopted within the framework of the Decree of the President, the Concept "On the creation of an innovative scientific and production pharmaceutical cluster" Tashkent Pharma Park "is aimed at creating a system for the development of educational, research potential in the country's pharmaceutical industry, education and training in the field of pharmaceuticals based on the best foreign curricula, and the creation of new science-intensive and high-tech industries. This master will include the creation of:

- Pharmaceutical technical university with its own infrastructure (research center, laboratories, pharmacopoeial center, vivarium, etc.);
- Industrial zone (production sites for the production of innovative medicines, medical products and medical equipment).
- The creation of a pharmaceutical cluster should solve the following tasks:
- Development of the pharmaceutical industry of the republic through the introduction of innovative solutions (know-how) and high technologies using international experience;
- Creation of a specialized educational infrastructure for the training of qualified personnel in accordance with international training programs for specialties in demand in the pharmaceutical industry;
- Development of the research base by integrating it into the international innovation system, creating modern teaching and laboratory and research centers, as well as innovation infrastructure;
- Attraction of investments and advanced technologies, including foreign pharmaceutical companies, to create modern competitive industries for the production of innovative and high-quality medicines, medical products and medical equipment;
- Providing conditions for the participation of scientific, educational and research centers in scientific, technical and innovative programs, competitions and grants;
- Establishing cooperation with similar foreign research centers by organizing a constant exchange of experience and data, ensuring practical participation in international research programs, conferences and symposiums.

Among the main directions of the university is the training of qualified personnel in the field of production of medicines, medical devices and medical equipment, cosmetology, industry and business management in accordance with international educational standards.

Today, one of the urgent problems for domestic manufacturers is the transition to GMP standards. The introduction of GMP standards is an important aspect of healthcare development, as it solves the problems of drug interchangeability, public procurement, drug insurance, and pricing policy in the field of drug supply. To date, 10 out of 95 domestic pharmaceutical companies producing medicines have implemented the requirements of good manufacturing practice - GMP.

Insufficient organization of work on the implementation of international standards at domestic enterprises, including the requirements of good manufacturing practice (GMP), good pharmacovigilance practice (GVP) and ISO 13485, which regulate the quality and safety management system at pharmaceutical enterprises, limits the ability to produce effective and safe pharmaceutical products. Products that is competitive in the foreign and domestic markets. The transition of the pharmaceutical industry to GMP standards to the formation of a market for high-quality drugs, the improvement of the pharmaceutical industry as a whole and the movement to the world level in terms of quality and range of manufactured drugs.

In conclusion, it can be noted that with the help of the cluster approach, the main problems of the domestic production of drugs and substances that will be competitive not only in the domestic but also in the foreign market will be solved:

- Transition of domestic pharmaceutical enterprises to international GMP standards;
- Weakening the import dependence of the domestic pharmaceutical market, including in terms of ensuring the production of medicines with pharmaceutical substances;
- Localization on the territory of the republic of new innovative technologies for the production of medicines, including through foreign investment.

Comprehensive, large-scale work is underway in the republic to raise the pharmaceutical industry to a new level of development and create conditions for its transition from an investment to an innovative development model.

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