Innovative Development in the Context of Digitalization of the National Economy

Aygun Aliyeva
Institute of Control Systems (ICS) of ANAS
68 B. Vahabzade, Baku, Azerbaijan
aliyevaaygun1978@gmail.com

***Abstract*—The article analyzes the development of innovative entrepreneurship in order to ensure the strengthening of market positions in modern competitive conditions, to achieve competitiveness and its sustainable maintenance. Issues of development of innovation entrepreneurship in the Republic of Azerbaijan are considered in the article. Global experience shows that support of innovation development of the economy in developed countries gives positive results. The article analyzes the existing problems in the application of modern innovations in economics and presents suggestions and recommendations for their elimination.**

Keywords—innovation development, investment, technology parks, industry, economy

The processes of globalization accelerated by the development and spread of information and communication technologies at the beginning of the 21th century has a serious impact on the socio-economic life of countries. In the globalized world, the pace of development of economic processes, the spread and application of innovations in the field of production are accelerating. This gives a positive impetus to the impact of globalization and, in turn, allows a country to adopt more advanced technical standards and new management practices.

As a result of vital socio-economic reforms in our country and legal measures taken in parallel to make these reforms sustainable, the effects of the global economic crisis have been reduced to a minimum. The socio-economic policy successfully pursued in recent years in Azerbaijan to ensure sustainable development, as well as the process of diversification of the national economy, which is one of the priorities of this policy, are instrumental in this context. The planned economic programs and investment projects have been and are being successfully implemented. All these processes are closely observed by a number of influential economic centers around the world, and the level of economic development of our state is valued highly. It should be noted that one of the main objectives of the Strategic Road Map, approved by the decree of President Ilham Aliyev on December 6, 2016, is to ensure the innovative development of the non-oil sector. The global financial crises and the decline in world crude oil prices over the past three years, and the growing global pressure on the nature of economic development as a whole have accelerated the development and implementation of several strategic road maps. Thus, the Strategic Road Map for ensuring the promising areas of the national economy covers the years up to 2020, 2025 and beyond 2025 (9).

It should be noted that the successful implementation of the Strategic Road Maps is aimed at ensuring macroeconomic stability, increasing the non-oil sector and export, improving trade and fiscal balance, creating a favorable business environment and attracting investment in economic sectors, continuously improving infrastructure, creating innovative new industries and improving the social wellbeing of the population, as well as at strengthening the position of our country in international rankings.

An analysis of the scientific and technical policy of developed countries in recent years shows that strengthening the interrelation of science, production and social life is the main objective of public policy for these countries, as well as the basis of a new type of economy. This is considered innovative economy. It should be noted that innovative economy has been successfully developing in the European Union for the last 25-30 years. The role of innovative entrepreneurship in these processes is also significant. Innovative economy does not mean only the economic processes that systematically use the achievements and results of constantly evolving science. This is essentially a system of economic relations in which scientific and intellectual capital consists of a large and significant part of the available funds of the economic system, corporate entities and economic entities. In general, the main "center of gravity" in an innovative economy is scientific knowledge, intellectual capital, engineering processes, as well as innovation infrastructure. It should be borne in mind that these are the main components of ultimately ensuring economic growth (1, p.254).

According to the Global Center for Digital Business Transformation, "if the digital revolution does not undergo digital transformation in the next five years, 40% of the world's leading companies in the field will be driven out of the market." In order to effectively adapt to the ongoing changes, it is expedient to study them in depth and identify new global challenges, and adequately address them in the future. Otherwise, they can lead to irreversible consequences for businesses, the labor market and society as a whole. Taking these changes into account, experts estimate that about 50% of the professions that exist today may disappear in 2025-2030. The professions of the future will require from people

more innovation, agility, mobility and more advanced social skills (2).

As a result of changes in the external environment in modern times, the areas of the digital economy that are important for business play a more important role. First, ways must be explored to remove barriers to company's entry into one market or another. As we know, globalization is intensifying competition, and as a result, physical distances are no longer considered an obstacle. Second, the company dictate has been replaced by the consumer dictate, and companies have fewer opportunities to manipulate consumers. Even the most professional marketing cannot neutralize negative feedback about the product on the internet, and the business becomes forced to restructure its strategy in the light of these new realities. Third, if in the past the decision on the location of the project implementation was often determined by geographical distance: the idea, as a rule, was developed at the place of origin, and then implemented. In the setting of digitalization of the economy, the idea is usually implemented where there are more favorable conditions for innovation activity. Fourth, the digitalization of the economy requires forming and adopting new managerial decisions: new methods of assessing economic efficiency, as well as the value of organizations that produce material products or provide intellectual services, create intellectual products, and so on.

The efficiency of production is the main category of market economy, which is directly related to the achievement of the end goal of social production, the development of each enterprise as a whole. The essence of improving the economic efficiency of production is improving the economic results per item of expenditure in the process of using available resources. At present, one of the main functions of the socio-economic development program of our country is to increase its global competitiveness, which is an integral condition for the transition of the economy to innovative development.

Evaluation of economic efficiency of business activity as part of economic analysis is an indicator of the most important aspects of the economic activity of an organization. When analyzing the evaluation of the efficiency of an enterprise in our country, in most cases, financial indicators are taken as the only benchmark of its activity. Most economists believe that it is necessary to measure efficiency with a comprehensive indicator, but there is currently no generally accepted system of indicators for evaluating efficiency. For this reason, the criteria may vary from enterprise to enterprise.

To achieve and maintain competitiveness, an organization must be constantly seeking and implementing innovations, while retaining the advantages it has gained. Only this factor will strengthen its market positions in the current conditions of growing competition. Thus, the role of innovation in the modern world is growing significantly, because it is impossible to produce competitive highly science-intensive and innovative products without it.

To evaluate the efficiency of innovation, it is advisable to apply an integrated approach to modernization. Modernization creates conditions for the production of new products, opens opportunities for the unhindered production of innovative products. Modernization also helps to improve the quality of finished products using more modern technologies. The complex mechanism of innovation activity within the modernization program affects all elements of modernization, i.e., the formation of a team authorized to implement the program, reconstruct, develop and apply new technologies and the formation of financial resources. The efficiency of this mechanism is that the formation of competitiveness is carried out independently at each stage (3).

One of the methods of increasing efficiency that combines all the results is the development of innovation activities. Creating innovative products and technologies, equipment upgrades will allow many enterprises not only to build a modern range of products, but also to improve the quality and presentation of products. This will increase the competitiveness of the country's products in both domestic and foreign markets.

In the context of the growing role of modern knowledge and information, the integration of Azerbaijan into the world economic community, the strengthening of interaction between capital markets and new technologies makes the transition of the country's economy to innovative development, expansion of innovative entrepreneurship even more important.

The directions and methods of transition of the national economy to innovative development can be formulated only taking into account the key specific features of the country, including its unique natural resources, production and scientific and technological potential. Strategic and tactical measures in the field of innovation can be developed only scientifically. Therefore, it is first and foremost necessary to study scientific theoretical and conceptual approaches to ensuring the institutional directions of innovation-oriented economic development. Modern ICT, various innovation systems including key innovations, have recently become one of the important conditions for the socio-economic, cultural and intellectual growth of any state, indicating the overall level of development and potential. We should bear in mind that by formulating economic development strategies on the basis of science and technology, the states that consider innovative development to be an important guarantee of the state-building process occupy leading positions in the world (4, p.140).

President of the Republic of Azerbaijan Mr. Ilham Aliyev continues the socio-economic development of the country at the level that meets modern standards. The purposeful policy pursued by Mr. President to ensure that most of the proceeds from the sale of oil and gas products for export to international markets is directed to human capital is being successfully continued. In the example of Japan, Singapore, Malaysia, South Korea, it is safe to say that science and education, the potential of highly qualified personnel are the main guarantee of sustainable socio-economic, cultural and intellectual development of any country. It should be noted that due to the importance of intellectual potential and the dividends it brings, it now surpasses even the richest natural resources. In order to continue economic competition compared to developed countries, it is important to focus primarily on education, extensive knowledge, information technology, innovation economy, as well as the successful innovative entrepreneurship (5).

If we analyze the number of industrial enterprises specializing in the application of innovations across all types of property in the Republic of Azerbaijan on the basis of annual statistics, we can see that there have been significant changes in this area recently (Fig. 1). For instance, if in 2015 the number of industrial enterprises operating in our country

on all types of property was 2,583, in 2018 and 2019 the figure grew to 2,837 and 3,169, respectively (8). All this growth process is due to the continuous development of enterprises in the non-oil sector in our country, the increased investment in industry, the expansion of export opportunities of industrial enterprises and private innovative entrepreneurship.

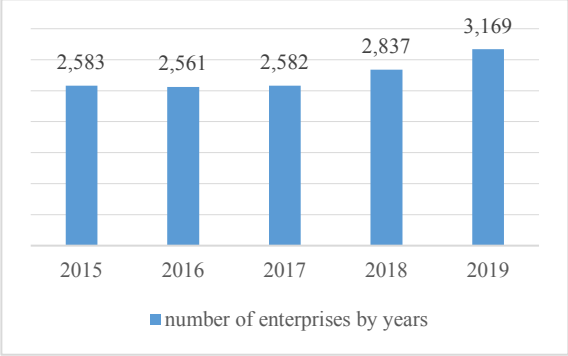

Fig. 1. Number of industrial enterprises operating in the Republic of Azerbaijan across all types of property (by types of property)

TABLE I. VOLUME OF INNOVATION PRODUCTS ACROSS ALL INDUSTRIES, BY LEVEL OF INNOVATION AND TYPE OF ECONOMIC ACTIVITY, THOUSAND MANATS

Year	2016	2017	2018	2019
A product that has undergone significant changes and is newly introduced	35,746.9	14,676.7	28,952.2	21,698.1
Improved product	540.9	383.8	855.3	3,905.9

An analysis of statistical data shows that there have been significant changes in the level of innovation in recent years in Azerbaijan in all industries and the volume of innovative products produced by innovative entrepreneurs by type of economic activity (Table 1). For instance, if the volume of newly introduced products that have undergone significant changes in industrial enterprises in 2016 was 35,746.9 thousand manat, in 2018 and 2019 this figure decreased to 28,952.2 and 21,698.1 thousand manat, respectively. The main reason for the decline is the decrease in the production of innovative products by innovative industrial enterprises in the regions, including the decrease in the exports of manufactured products. In 2016, the manufacture of innovative and improved products by industrial enterprises amounted to 540.9 thousand manat, whereas in 2019 this figure increased several times and amounted to 3,905.9 thousand manat (8). The main reason for this is the growing demand for innovative products in domestic and foreign markets.

Due to the rapid development of science and technology in the recent years, as well as the ever-increasing demand of society for these innovations, the application of modern innovation processes in economy is becoming a key priority for more innovative entrepreneurship. The experience of developed countries shows that the need to develop innovative entrepreneurship is determined by a number of factors, including: the defining role of science in improving the efficiency of the development and application of modern technologies; the need to significantly reduce the time of the formation and adoption of modern innovative technologies, to increase the technical level of production; the increase of expenses of enterprises during the development of new products by innovative entrepreneurs; rapid obsolescence of equipment and technology; the need for rapid introduction of new innovative technologies, etc. The experience of post-Soviet countries shows that innovative entrepreneurship as a process can be divided into four main components. These include: the search for modern ideas, innovative discoveries and their application in the production process; organization of efficient business plans for the developed idea; search for the required capital resources; implementation of management and control processes, etc. (6, p. 541).

In modern times, transport connects the two separate sectors of the national economy, agriculture and industry, making the country's economy a single whole.

An economy of the 21st century requires every country to produce competitive, specialized products for the world market, while the transport sector requires vehicles with high load capacity and intensive movement capacity. From this point of view, competition in all spheres of transport in the world is based on the implementation of transportation of heavy cargo over long distances in a short period of time.

The development of transport in the world not only involves the transportation of goods and passengers, but is also of great economic importance in terms of the employment of hundreds of millions of people in the transport sector, the inclusion of rich natural resources on land and in water basins in the production cycle, settlement of the population, the formation of cities, towns and villages, and in the development of industrial and transport hubs, including ports.

From this point of view, a successful economic policy that ensures the rapid development of the economy in our republic, leading to sustainable stability, progress and growth, has launched a qualitatively new stage in the development of road infrastructure of our country by creating favorable conditions for the development of the transport sector, as in all other areas. In this context, efficient regulation in the transport system has become an important necessity to ensure the rapid, safe and quality implementation of the rapidly developing national economy and dynamically growing transportation needs of the society in our country.

The transport sector, which occupies a special place in the rapid and all-round development of the national economy, covers the activities in the production, distribution and consumption of goods and services, and plays an undeniable role in all economic activities. According to the latest World Bank reports, the share of transportation costs in the initial price of the product is currently 5% in developed countries, 4.25% in developing countries, and an average of 4.8% worldwide. In particular, the annual volume of the Asian transport market alone is about $200 billion. Thus, the reduction of transportation costs and the consequent reduction of the cost of delivery of manufactured goods to consumer markets results in increased competitiveness and development of other sectors of economy, including industry and the national economy.

In this regard, it is very important to coordinate and analyze the transport areas from a modern point of view in order to determine the place of the Republic of Azerbaijan in the world economy and integration processes with other countries. Azerbaijan, who occupies a central position among the Eurasian countries, has a favorable transport system, which creates a favorable basis for the implementation of efficient economic relations, meeting the global interests. At

the same time, the restoration of the historic Silk Road is vital for the implementation of the TACIS (Technical Assistance to the Commonwealth of Independent States) and TRACECA (Transport Corridor Europe-Caucasus-Asia) programs. (7)

Taking into account the important role of Azerbaijan's transport system in international integration, by establishing the economic efficiency of rail, sea, road, pipeline, air and river transport, the characteristics and capacity of transport hubs in modern conditions are studied, the transport system of the republic is analyzed by economic regions, specific features of each economic region are determined, the efficiency and potential of transport in domestic and foreign cargo transportation are evaluated. The transport system entering a new stage of development after gaining independence, the completion of reforms in the transport sector has created a favorable stimulus for the formation of a uniform transport policy.

In order to attract transit cargo to the Middle Corridor in the competitive environment created by neighboring transit corridors, it is important to improve the efficiency of the corridor, regularity of transportation, optimization of tariffs and, most importantly, simplification and harmonization of regulatory and customs procedures. Digitalization of the Middle Corridor is the most important tool to ensure transparency in transit traffic and equal conditions between participants in the transport process.

As a result of the liberation of our lands by the Azerbaijani Army as a result of the 44-day civil war under the leadership of President, Supreme Commander-in-Chief Ilham Aliyev, ample opportunities have opened up for the successful promotion of transport corridors through the country's territory. Azerbaijan is the initiator of a number of important international projects in the region, including the Baku-Tbilisi-Kars railway. Our country plays an active role in the development of international transport corridors, which have a significant impact on international transport and the expansion of multimodal infrastructure.

Innovative small business has significant opportunities for the effective application and development of innovative technologies. In this regard, small businesses have the ability to adapt to changes in the market environment, so they can use innovative technologies for a long time. Innovations in small-scale production processes do not require large financial investments and operating costs. That is why the operational efficiency of management by small business structures allows for the rapid improvement and application of new technologies. The risk of losses in the process of transition to new production areas is also relatively low because of the small volume of production in the activities of innovative businesses.

It should be taken into account that innovative business entities ensure the commercialization of the creative activities of innovators. From this point of view, innovative entrepreneurship also carries out activities for the development and application of new technologies, equipment, goods and services in order to make a profit. In the conditions of modern market economy, small innovative enterprises are the most efficient subject of economic activity of innovative entrepreneurship. These enterprises play an important role in the introduction of new innovative technologies (7).

When introducing modern innovations, it is important to study and evaluate the scientific-technical, organizational-managerial, financial, legal, political, socio-psychological and cultural factors that accelerate the innovation process. Although innovative small businesses have unlimited resources, they have traditionally played an important role in the implementation of various areas of scientific and technological progress. In general, the main results obtained from the application of the mechanism of development of innovative entrepreneurship can be shown as follows: increased number of innovative small enterprises; new jobs; increased innovation potential of the regions; increased share of budget revenues from the export of innovative products; increased indicators of the output of innovative products; rapid renovation of fixed production assets of small innovative entrepreneurship entities, etc.

CONCLUSION

In order to achieve competitiveness and maintain it, in addition to maintaining the advantages, an organization also has to strengthen its market positions in the modern context of growing competition in the process of continuous search and introduction of innovations. Using an integrated approach to modernization in order to assess the efficiency of innovation, it is possible to achieve the introduction of modern technologies, improved quality of finished products and, consequently, competitiveness.

Expansion of innovative entrepreneurship in our country is one of the important components of the economic policy being pursued. It is in this direction that extensive measures should be taken, such as the development of state-entrepreneur relations, improvement of the state regulation system, legislation and administrative procedures related to the business environment, the development of innovative entrepreneurship in the regions, further improvement of state support mechanisms for such entrepreneurship.

State support to the development of innovative entrepreneurship in Azerbaijan, along with other measures, should serve to attract young entrepreneurs to this field, to create favorable conditions for the implementation of business opportunities, to meet the needs for financial resources of small and medium entrepreneurs.

REFERENCES

[1] Shakaraliyev A.S. Economic policy of the state: A triumph of sustainable and continuous development, Baku. University of Economics, 2011, 365 p. (in Azerbaijani)

[2] Dovydova O.G. Innovations as a factor of increasing the efficiency of industrial enterprises in the context of the digitalization of the economy. UO "Belorusskiy Gosudarstvennyy Ekonomicheskiy Universitet", Republic of Belarus, Minsk (in Russian)

[3] Nekhorosheva, L.N. Changing the innovation landscape in the context of the formation of Industry 4.0: new threats and priorities / (in Russian)

[4] Digital transformation of economy and industry: problems and prospects. Monograph. Ed. Prof. A.V. Babkin, Doctor of Economics.- SPb: Izdatel'stvo Politekhnicheskogo universiteta, 2017, pp. 29-50. (in Russian)

[5] Babashkina A.M. State regulation of the national economy. Moscow: Finansy i Statistika, 2017, 254 p. (in Russian)

[6] Aliyeva A.A. Increasing the competitiveness of industrial enterprises in a market economy. Transactions of ANAS (Economics series), Baku: Elm və Bilik, 2019, No. 1, pp. 101-108 (in Azerbaijani)

[7] H.V. Isakov. Participation of the Republic of Azerbaijan in the restoration of the "Great Silk Road", Baku, Şərq-Qərb, 2011, 284 p. (in Azerbaijani)

[8] World Economy (edited by A.S. Bulatov) Moscow: Yurist, 2018, 734 p. (in Russian)

[9] Abdullayev K.N. The main characteristics of innovative development of the national economy // Tikintinin Iqtisadiyyatı və Menecment (Scientific-practical journal), Azerbaijan University of Architecture and Construction, Baku, No. 1, 2020, pp. 159-162. (in Azerbaijani)

[10] https://www.stat.gov.az/source/industry/?lang=en

[11] https://static.president.az/pdf/38542.pdf (in Azerbaijani)