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Innovation factors in the country's economic security management system

This article is devoted to the studies in the sphere of introducing innovation factors into the country's economic security management system. According to the research, innovation factors and economic security of the country are determined by its scientific and technological potential. The article reveals the essence of introducing innovation priorities in the Republic of Azerbaijan and describes two main categories of innovations. It also studies possible results of the state innovation policy in ensuring the country's economic security. Besides, it presents the scheme of innovation revival of the country's industrial potential, providing the enhancement of economic security.

Innovation, government policy, structural reforms, investment and innovation potential, innovation policy, lawmaking, innovation categories, economic security, revival of industrial and scientific-technological sphere.

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In the beginning of 1990s the Azerbaijan Republic possessed a most powerful intellectual, scientific-technological and production potential.

This provided the opportunity for a breakthrough in enhancing the efficiency of economy and life quality in Azerbaijan. However, in the course of reforms in the socio-political system, i.e. in the transition from socialism to capitalism, negative results were obtained due to the lack of professionalism of the legislative and executive powers.

Nowadays the tangible improvement of macroeconomic indicators is not related to the country's innovation strategies, for it is associated with the export of oil and oil products and is of a temporary, situational character. The proportion of innovation-active enterprises in the country has decreased 22-fold for 20 years. At the same time, many developed countries, such as the USA, Japan, Germany, France, and the leading companies of the world are shifting to a new innovation-driven economic policy, to the economy capable of ensuring the overall quality of products on the basis of the comprehensive development of the knowledge base.

According to its innovation-economic policy, the United States increased its federal budget expenditures on education by 50% in the period of 2000 – 2010. For example, the U.S. expenses for these purposes during the stated period have increased 100-fold in comparison with Russia. Therefore, if an education system is not established properly, then it will hardly be possible to use market innovation-economic relations for the revival of the economy in CIS

countries. Given the current state management policy, it is impossible to work out efficient principles of a new innovation economy.

The academic novelty of this article consists in the development of an efficient mechanism of innovation business functioning and management; in the substantiation of the factors enhancing the role of the government regulation of innovation activity. Besides, the paper describes the economy of the countries with market relations, the economy of the countries with economies in transition (CIS), furthermore, it defines the role of the state in managing the economy under crisis conditions.

It can be confidently asserted that the system approach and system analysis (in particular, the system of the unity of objects of management and its external relations) are the key tools of the new innovation-based economic policy. The system analysis of an object, or a subject of management should be carried out in the following sequence:

a) examination of its investment and innovation opportunities, and the formulation of an economic mission;

b) study and forecast of trends in the innovation development of the objects located in a far and near environment;

c) study and forecast of the parameters of innovation products' consumers markets and their competitors;

d) research and forecast of the parameters of innovation production suppliers' markets;

e) definition of goals, functions; construction (development) of the object's structure on the innovation basis.

Thus, the results of the system analysis serve as the foundations for the elaboration of the strategy of the object's innovation-based development.

The studies indicate that the development of society is conditioned by efficient republican laws, strategies and programmes. Their study according to various aspects of education and science, the forecast and elaboration of the socio-economic development plan of the Azerbaijan Republic and its national economy, as well as its competitiveness management lead to the conclusion that the system development of these documents was not carried out, and if it was indeed, then the goals, task and results turned out to be too general. Therefore, investment and innovation programmes do not and will not produce the desired outcome. It is common knowledge, that it is the Constitution which is the basic law, determining the quality of the documents on a country's economy management [3, p. 7-10].

When drafting the republican laws, the deputies of the National Assembly (Milli Majlis) of the Azerbaijan Republic consult certain laws and normative acts of the advanced Western countries, but at the same time, the selected laws in the sphere of competition, competitiveness, innovation activity, personality development, education, healthcare, culture, standardization, information and communication technologies are not considered sufficiently enough.

There is no system of forecasting, optimization, functional-cost analysis, resource-saving, management of quality, competitiveness and innovation processes.

Under the conditions of transition to the market economy, innovation policy is becoming more important as a factor of ensuring the country's economic security. The state innovation policy is the major element of economic and scientific-technological policy. It defines the main trends of basic innovations at the regional level, in intergovernmental relations, as well as the mechanism of implementation of these priorities. Studies prove that the development of innovation priorities in the Republic of Azerbaijan should be based on:

- long-term economic and scientific-technological forecasts;
- statement of these priorities in innovation programmes and regulatory documents;
- state support of priority basic innovations and state innovation programmes;

- support of small business
- creation of the legal base of innovation activity.

The role and place of the country's innovation policy becomes more important during technological crises and the transition to a new technological mode, i.e. when basic innovations require urgent state support and the application of antimonopoly legislation in order to curb the impact of monopolies, seeking to preserve obsolete equipment and the old technological mode.

The innovation policy of Azerbaijan should be strategically aimed at the elimination of technological degradation, the development of the fifth technological mode, the enhancement of innovation activity, the formation of a unified innovation policy for the country [1, 102-104].

The reform of the economy in our country depends on the state innovation policy. It contributes to the development of incentives for innovations commercialization at the enterprises and institutes possessing economic independence; it also enhances the competitiveness of domestic production and the development of new institutional mechanisms of competitive financing of R&D.

It is necessary to take into account the aggravation of problems of innovation processes management that consist in the following:

- weakening of administrative leverages;
- reduction in the number of coordinating bodies;
- deterioration of industrial science, which impeded the introduction of new scientific developments;
- deterioration of the personnel and material potential of scientific institutions due to external and internal "brain drain";
- lowering of the status of scientific workers;
- extreme depreciation of equipment, etc.

Thus, innovation development of Azerbaijan economy requires the removal of administrative and institutional barriers and provision of economic self-sufficiency of the subjects of innovation process.

It should be noted that the factors mentioned above were then followed by others that significantly hamper the innovation activity of economic entities. Such factors consist in:

- absence of a strategic motivation on the part of the majority of national economic entities;
- significant resource limitations for the economy;
- reduction of the creative component in human activity, conditioned by the change of values.

Accordingly, at present, the following problems of innovation sector are coming to the fore in our country, as well as in CIS countries:

- ➢ elimination of "non-transparency" of innovations market, i.e. the elimination of informal ways of technology transfer, as well as the complexity of financial and legal relations;
- ➢ development of communication channels, providing the connection between the subjects of innovation processes;
- ➢ creation of special tools for financing innovation projects.

The problems listed above involve the term "infrastructure of an innovation market", which means the set of economic entities and mechanisms, that provide material and organizational support to the efficient interaction of manufacturers and consumers of knowledge-intensive products in the period of creating innovations and further distribution of knowledge-intensive products in the economy.

Research proves that the enhancement of production efficiency in modern conditions can be achieved mainly through the development of innovation processes that is displayed in new technologies, new kinds of competitive products. The search for and use of innovations directly at the enterprises is a relevant problem as well.

The development of new organizational and technological solutions creates the conditions for the renewal of reproduction processes at the enterprises and additional impetus to economic growth. Essentially, innovations include not only technical or technological developments, but also any changes for the better in all spheres of research and production activities.

The founder of the theory of innovation J. Schumpeter, considering innovation, especially technological, as entrepreneur's means of profit-making, proved that a dynamic entrepreneur is a source of short-term market fluctuations. Analyzing the reasons for such fluctuations, J. Schumpeter, for the first time in economics, defined the "new combinations of changes in development" and gave them a description.

J. Schumpeter identified five typical changes:

1) manufacture of products with new properties;

2) introduction of a new method (way) of manufacture;

3) development of new markets;

4) use of a new source of raw materials;

5) performance of the relevant reorganization of production.

What J. Schumpeter meant by the notion of "innovation" in the 1930s, took place due to the use of new or advanced solutions of technological, organizational nature in production, supply and marketing of products. In accordance with international standards, innovation is defined as the final result of innovative activities that was embodied in the form of a new or improved product introduced in the market, a new or improved technological process, used in practical activities.

Traditionally all innovations are divided into two main categories: technological and non-technological. Many researchers argue that technological innovations determine the intensity of production development.

Non-technological innovations include innovations of organizational, managerial, legal, social, ecological character. Studies show that in the transition period the whole production sphere and the sphere of services in CIS countries had to face the situation of the 1930s, which is possible to handle only by introducing technological and non-technological innovations on the basis of "combinations of changes in development" described by J. Schumpeter.

Research shows that due to various external and internal reasons, the great opportunities of CIS countries were impeded by sluggish, inefficient bureaucracies in the period of transition to market relations.

As a result, CIS countries experienced a complete shutdown of many factories and plants, with a total loss of skilled personnel in all the spheres of national economy.

In addition, economic security of these countries, being part of national security, deteriorated. Studies prove that it is impossible to confront threats to economic and national security regardless of at least basic national values and objectives. By and large, the fact that innovation development has been curbed is explained by the absence of the state innovation policy strategy, which is to determine the role and place of the government in the provision of innovation process in innovation sphere.

The modern experience of the countries with market economy indicates that the state actively regulates the economy. Emerging economies should have a government, which actively regulates and revives the production sphere by introducing innovations and investments in it.

In the countries with economies in transition, it is the state and not the "invisible hand of the market" that should define the objectives of the revival of national economy branches on innovation technological and non-technological basis.

It is not the market, but the state that defines what the economy should be, for the business in emerging economies is not capable of car-

rying out structural reforms on its own, to eliminate imbalances and to level economic and social differences.

Today, information and industry are important conditions for ensuring economic security. These factors form the foundation for choosing the policy and strategy of economic revival on the basis of innovation support and scientifically grounded introduction of innovations in the production sphere.

The state innovation policy should be an integral part of socio-economic policy aimed at the development and promotion of innovation activity, which is understood as the creation of new or advanced products, new or advanced technological processes, implemented in the economy using R&D, experimental and design works, or scientific achievements.

Thus, the author believes that the state innovation policy is defined as the set of socio-economic relations between the state and the subjects of scientific-technological activity in the issues of creation, transformation and use of innovations for modernization of all spheres of life, provided that the government ensures legal support and compliance with moral and ethical aspects of innovation system's formation. And this problem should be solved on the basis of efficient regulation of innovations by state authorities: promotion of innovations, creation of the legal base of innovation processes and formation of scientific and innovation structure, which is connected with the solving of the urgent tasks that the state faces in the sphere of innovation activity at present.

The state innovation policy should be formed and implemented with the acknowledgement of the fact that innovation activities are crucial for enhancing the competitiveness of domestic products, for ensuring sustainable economic growth, for increasing the level and improving population's life quality, and for ensuring the defense, technological, industrial, ecological security, which would provide for the improvement of economic and national security.

Unfortunately, at present, it is impossible to carry out an effective innovation policy in CIS countries, as all the spheres of industrial production, science, R&D have deteriorated.

Over the last 20 years the innovation policy in CIS countries hasn't undergone any significant positive changes. As for the opinion of some economists that the modern economy is determined by the market and not the state, it is absolutely groundless. In particular, it concerns the issues of economic development in CIS countries. The fact is that many countries with capitalistic socio-political system and centuries-old forms of economic development united their industrial and financial capital in order to upgrade their industrial production, and thus carrying out their investment and innovation policy, which linked science and production. However, even these conditions did not enhance the development efficiency of a market economy in order to improve people's living conditions.

Economy of CIS countries, including Azerbaijan, is absolutely different from the centuries-old capitalist economy. The point is that the former USSR countries, having shifted toward market economy, lost their scientific potential, as well as the great number of skilled employees, and returned to the level of 1950s – 1960s. All CIS countries, including the Republic of Azerbaijan, have become raw material suppliers. Oil and gas exports in these countries account for 92 – 97% of overall exports. All the other industries, which don't produce competitive products, virtually ceased to exist, and therefore, economic security can't be ensured without the innovation policy of the government.

The author believes that the crises in CIS countries and in the Republic of Azerbaijan are much more complicated structurally than the crises affecting the developed capitalist countries. Here we are confronted, on the one hand, with the crisis in the countries with powerful industrial potential, which produce

competitive products, and where the relations between science and production are close; on the other hand, we observe the crisis in the countries with weak industrial potential that are not capable of producing competitive products and that lost the link between science and production. And in both cases we mean their innovation factor in ensuring the country's economic and national security, affecting legislative, monopolistic, social, banking and trade union activities.

The intervention of the government in the economy at the beginning of the 20th century was spontaneous and it had no theoretical foundation as a manifestation of economic mechanisms of entering the crisis and preventing it.

The author's research in the history of the Great Depression, an economic crisis that took place in the United States in 1929 – 1933, shows that the government did everything in its power to avert it. The then U.S. Presidents J. Edgar Hoover and Franklin D. Roosevelt piloted a number of important bills. They included the laws on loans to farmers and businessmen, on the programmes for scientific and industrial policy, public and construction works. Although these half-measures couldn't recover the situation completely, they at least reduced the crisis effects to a minimum. At the same time, disastrous changes finally undermined the confidence in the fact that a spontaneously organized market enjoying the minimal participation and intervention of the government was able to ensure balance and stability in the economy. At that time it was already clear that the current economic theory had serious flaws.

Many economists, including Karl Marx, were baffled by those flaws. The Great Depression clarified the occurred economic paradox. The first step to the solution was made by John Maynard Keynes in his work "The General Theory of Employment, Interest and Money" (1936). Keynes' main achievement was his refutation of the existed notion, that market economy was capable of self-regulation. The scientist proved that it was inclined to stagnation, which created internal tension in economic and social relations, the tension that should be removed through government intervention.

The author argues that government intervention in the economy in CIS countries, including the Republic of Azerbaijan, should be effected more promptly, than in the developed countries, on the basis of innovation factors, which is necessary for the revival of competitive industry, reduction of social tension and enhancement of economic security. The funds, received from the export of raw materials should be the source of introducing innovation factors. The implementation of the investment innovation factor in Azerbaijan's oil sector led to the 11-fold increase in oil production in 2011 as compared to 1992 *(table)*.

Here the question arises: how can the domestic industrial production be revived in the conditions of a relentless competition by applying innovations as the main lever of development?

Studies show that there are two ways to implement an investment strategy that would improve a country's economic security.

The *first* one consists in paying special attention to the country's scientific-technological potential.

Development of innovation activity in oil industry in the Republic of Azerbaijan in 2005 – 2011

No.	Indicators	2005	2006	2007	2008	2009	2010	2011
1.	Volume of exported oil products, million tons	33.6	43.6	47.8	29.7	49.5	49.8	50.3
2.	Expenditures on technological innovations, billion dollars	1.2	1.3	1.1	1.3	1.6	1.2	1.1
3.	Number of innovation enterprises	5	11	12	15	18	21	23

The *second* one consists in the introduction of the existing foreign scientific-technological potential and innovation into the country's own economy. In the first place, this strategy was used by Japan in the post-war period, when it purchased licenses to the advanced technologies from such highly developed countries as the USA, England, France, Germany in order to develop the production of state-of-the-art products, enjoying great demand on the international market, and also for the subsequent creation and development of its own scientific-technological and scientific-industrial potential. This ensured further implementation of the innovation cycle from basic R&D to the introduction of its own innovations for the modernization of production.

Studies prove that in the present conditions, when the industrial and scientific spheres have declined and the link between science and production has been lost, the first way of implementing innovation policy is virtually impossible.

The second one, i.e. the Japanese way of reviving industrial innovation and scientific-technological sphere is the most reasonable and productive [2, p. 65-69].

Such a strategy was adopted not only in Japan, but also in China and some countries of South-East Asia. The classic example is the creation of the competitive South Korean automotive industry and industry producing advanced computers, household equipment and electronics.

The Republic of Azerbaijan should develop and choose its own strategy of promoting innovations, which would be based on the existing production, intellectual and resource potential. The strategy of innovation and technological breakthrough, in case of its successful development, adoption and consistent implementation with the government support, will give Azerbaijan the last chance to stop its technological deterioration, and to revive the production in its national economy up to the relevant international standards.

Studies show that many countries pay considerable attention to the provision of necessary external and internal economic and technological information that is of a certain innovation interest for national enterprises and businesses.

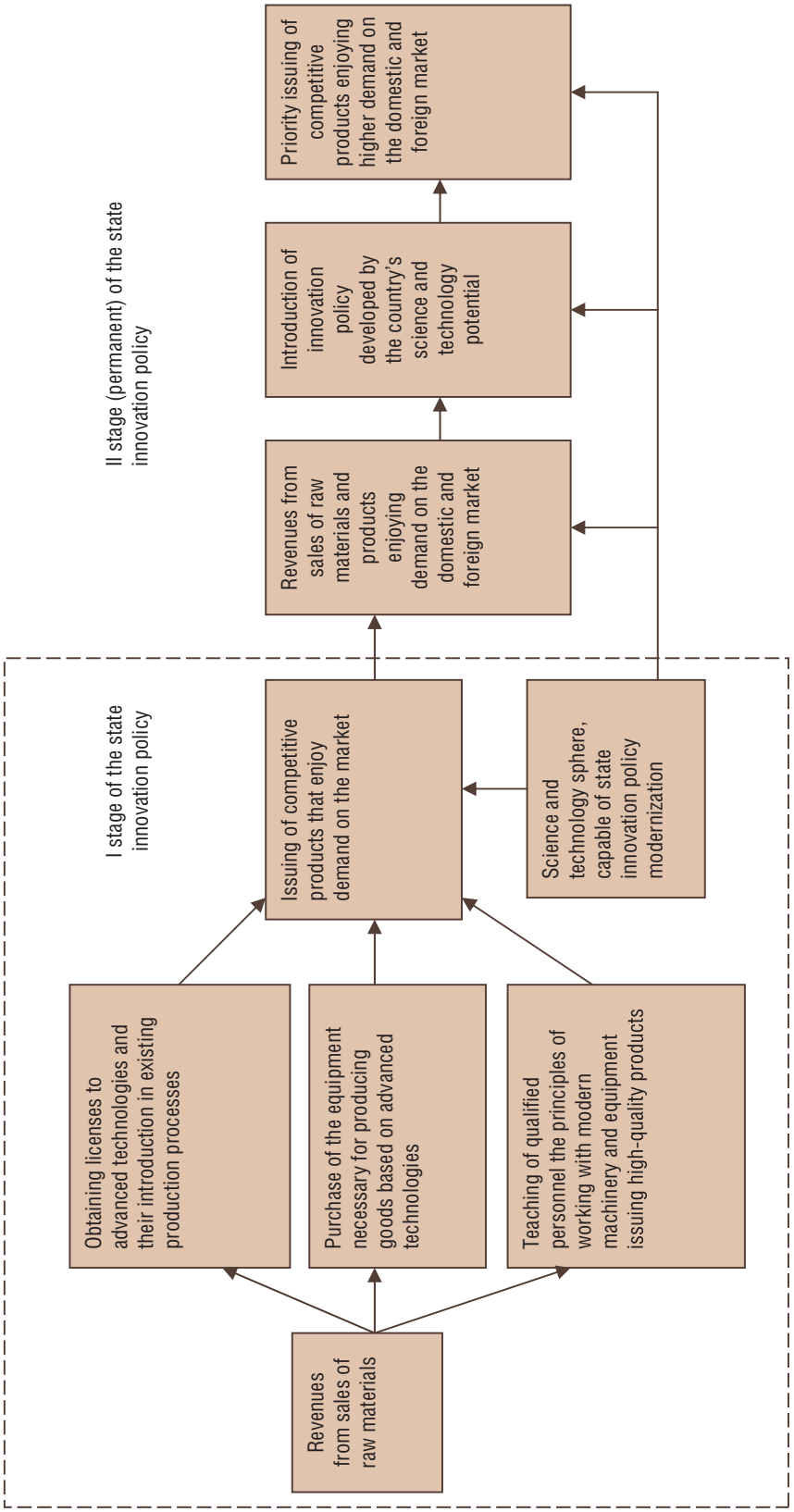
In this regard, it is notable experience of Japan, which since 1958 under the Ministry of Industry of a foreign trade organization dedicated to the collection of scientific-innovation development across the world and their analysis. This organization receives economic information due to close contacts with official representatives of all economically developed countries. Selection and qualitative analysis of the innovations is carried out in Japan (as in France, Germany and etc.) with the help of information system.

That is the way of innovations implementation that contributes to the maintenance of the country's economic security at the proper level.

The revival of the industrial potential in CIS countries requires determining the information, financial, personnel sources possessing the ability to conduct innovation policy taking into consideration the availability of domestic raw material resources and the previous experience in various spheres of industry.

For example, the Azerbaijan Republic has sufficient raw material resources, like oil, gas, cotton, wool, silk, tobacco, etc., as well as intellectual resources consisting in the experience in the processing of raw materials, production of consumer and industrial products, qualified scientific-technological and engineering personnel, capable in the shortest term to restore their scientific potential on the basis of borrowed innovations, introduced in the production sphere. The *figure* displays the ways and sources of innovation policy in the Republic of Azerbaijan, promoting economic security.

Scheme of innovation revival of the country's industrial potential ensuring its economic security



The fast-track introduction of the scheme of innovation policy aimed at enhancing the country's economic security requires innovation-oriented investments, especially foreign ones, in order to develop the advanced technologies of the sixth technological mode.

Integration of science, higher educational institutions and production in the selected strategic innovation priorities, which will contribute to the attraction of talented youth is particularly relevant for the implementation of the second stage of innovation policy.

Thus, the restructuring of national economy in order to ensure the proper level of the country's economic security requires a science-based governmental innovation policy. In turn, this requires certain financial, intellectual, informational costs. Science-based innovation policy contributes to the strengthening of the country's economic security, which is possible due to the gradual innovation revival of the country's industry and national economy.

At that, the government plays an important role in the implementation of innovation policy in priority areas, as well as in the creation of an advanced infrastructure of innovation activity, in ensuring the interaction between science, education, production and in formation of a favorable financial and credit sphere for the development of innovation activities.

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