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E.M. Adietova, R.K. Sabirova, D.Zh. Zhastalapova, N.A. Rzagaliev, N.I. Gabdullin

Atyrau state University named after Kh.Dosmukhamedova, Kazakhstan.

E-mail: adiet_elm79@mail.ru, sabirovarysty@mail.ru, Dikon14dikon@gmail.com, nurim0@mail.ru,
nurza_9_7@mail.ru

**FEATURES OF FORMATION OF INNOVATIVE INFRASTRUCTURE
IN THE ECONOMY OF KAZAKHSTAN**

Abstract. The transition of the economy of Kazakhstan to an innovative path of development is impossible without a systematic update of the legislative base, which is conducive to the development of innovative activity. Innovation infrastructure is a complex of enterprises, including the material and technical base, trained professional staff and well-established mechanisms for cooperation with scientific and financial institutions, which are necessary to provide innovative entrepreneurs with a full package of services for organizing innovative industries, starting with consulting, initial marketing research and writing business plans and ending with the provision of preferential rent of premises, production facilities, commune services, etc. Pro-innovative Innovative companies' cluster oriented on fast getting necessary knowledge and technology to increase current competitiveness. Innovative-oriented It is the companies' cluster that defines industrial, investment and social infrastructure of the region. It creates dynamic companies' groups which use leading knowledge and technologies, involve talented workforce all over the world, consumes and generates venture capital, defines and aims scientific researches of universities and other educational institutions.

Keywords: innovation infrastructure, economy, transformation, technology parks.

Introduction. Infrastructure is a complex of interconnected service structures or objects that make up and / or provide the basis for the functioning of the system. Therefore, the innovation infrastructure is a complex of interconnected service structures or objects that make up and / or provide the basis for the functioning of the innovation system.

Analyzing the experience of the countries leaders in innovation development, we note that the task of developing a balanced and effective innovation policy cannot be solved without a developed innovation infrastructure. So, the transition to the trajectory of sustainable development of such countries as the USA, Japan, EU countries, a number of Southeast Asian countries was achieved on the basis of ensuring the infrastructure of the innovation system. The innovative infrastructure of a country, as a rule, is not a “pure” expression of a certain theoretical model, but is a composition of various models.

World experience shows that a key factor in increasing the country's competitiveness and developing it in the direction of an effective innovation infrastructure is the state innovation policy, which is the link between academic science and industry.

- Innovation is understood as something successfully implemented (introduced) innovation, which is the end result of human intellectual activity, his imagination, creative process, discoveries, inventions and rationalization. Innovation is characterized by the introduction of products (goods and services) to the market with new consumer properties or a qualitative increase in the efficiency of production systems. To develop innovative policies and stimulate the formation of new markets in the world, a special innovative infrastructure of the innovation system operates: independent centers of expertise of research projects, research areas;

- Foresight centers, roadmaps that reduce the risks of introducing new products and coordinate the efforts of development teams;

- a variety of expert and futurological communities and networks, allowing to form a vision of the future;
- specialized educational centers (for example, the Massachusetts Institute of Technology, Stanford University), institutes and schools that train not only scientists and engineers, but also entrepreneurs who are capable of promoting innovative projects;
- centers for the commercialization of technology and development, etc.

Innovation, as a product of intellectual activity, cannot arise spontaneously. For the generation and implementation of innovations in practice, certain conditions are required - the presence of all institutions contributing to the implementation of innovations, as well as the degree of their development and interaction among themselves. The set of participants in the innovation process and the degree of institutional interaction of institutions form a certain system that has specific features from country to country. In economic science, this system, which is inherent in a particular country, is commonly called the national innovation system (NIS). In the national innovation system, all participants in the innovation process can be grouped into four macro categories:

- scientific and technical system – a set of research and development organizations;
- the business sector, which is a collection of enterprises engaged in the production of innovative products;
- innovative infrastructure;
- the state as a fundamental institution [1, p. 61].

Innovation infrastructure is a complex of interrelated production, consulting, educational and information structures that are ready to provide a base and a set of related services for the organization of innovative industries.

The lack of an integrated, systematic approach to managing innovative processes hinders the development of the country's innovative potential and does not allow us to correctly identify the priorities for its further development.

The following main problems can be distinguished, the unresolved of which negatively affects the development of domestic innovative potential:

- incompleteness of the majority of scientific developments of technologies and products with the aim of bringing them to the market for demand by consumers. This dramatically reduces the value of the proposed technologies (or products) in the eyes of potential partners;
- lack of modern mechanisms for introducing technological innovations and bringing them to the market. In market conditions, the mechanism for mastering innovations is inextricably linked with a small innovative business, which is characterized by high risk, but also high return if successful;
- lack of developed infrastructural elements to promote innovative projects, such as technology parks and specialized business incubators, a network of risk financing funds (venture funds), special financial mechanisms to support firms at the stage of their rapid growth, certified appraisers of firms and intellectual property, etc. ;
- lack of solvent demand in the domestic market for advanced technologies and industrial innovations.

Science and scientific and technical activities are related to the service sector and these services should be in demand by the market. Unfortunately, the domestic market for scientific services and high-tech products is currently very small. Most enterprises cannot afford to “buy” science services.

To implement a systematic approach to the formation of an innovative system, it is necessary to single out and analyze its main subsystems, where the state, through direct or indirect participation, can effectively implement an innovative policy.

The innovation system is divided into the following main subsystems, each of which includes, respectively, such elements:

1. Scientific potential - a necessary factor for innovative development, is formed by creating a developed sphere of applied research, carrying out “refinement” of fundamental developments to the level of commercial application;

Scientific potential includes:

- State scientific organizations - national research centers, research institutes, higher educational institutions, design institutes;
- Scientific organizations at national companies, laboratories at large enterprises;
- private research and design institutes;

- small and medium enterprises engaged in scientific research;
- scientific personnel and individual inventors;
- material and technical base.

To date, the country's scientific potential is represented by scientific organizations of the Ministry of Education and Science, industry ministries, private research organizations, research centers in the areas of scientific research under the authority of economic management, coordinating the activities of institutions of the relevant profile, as well as research institutes under the jurisdiction national companies.

2. Innovative entrepreneurship, providing for the development of a connecting (intermediary) role between the scientific, technical and manufacturing sectors. The ultimate goal of innovative entrepreneurship is the development of enterprises capable of responding promptly to the current market situation and establishing mass production of competitive high-tech products of a new generation and increased demand at the level of world standards.

Innovative entrepreneurship includes:

- business angels;
- enterprises;
- innovative managers;
- a multi-level innovation infrastructure that defines a set of interconnected production, consulting, educational and informational structures, serving and providing conditions for the implementation of innovative activities.

Innovative infrastructure consists of the following elements:

- national technology parks;
- regional technology parks;
- technological business incubators;
- science cities.

3. A financial infrastructure that provides comprehensive financing for research, production and educational processes in the field of innovation and technological development, based on a combination of various mechanisms of direct and indirect state support for innovative entrepreneurship and infrastructure.

Financial infrastructure consists of the following elements:

- government development institutions;
- venture capital funds;
- enterprises;
- individual entrepreneurs;
- second-tier banks;
- other.

One of the main tasks of the Ministry of Education and Science is to intensify innovation in educational institutions, as well as scientific and technological support for innovation. Therefore, for the development of the economy of the republic in the context of globalization and preparation for joining the WTO, it is necessary to adopt a state policy aimed at recognizing the priority of innovation in improving the competitiveness of domestic products, ensuring economic development and the country's security, and improving the living standards of the population.

The main principles of state innovation policy should be the financial support of innovative programs and projects aimed at solving the most important socio-economic problems, the formation of innovative infrastructure and training for the innovation sphere.

1. The transition of the economy of the republic to an innovative path of development is impossible without the formation of a regulatory framework conducive to the development of innovation, the basis of which should be the Law on Innovation.

2. In Kazakhstan, the scientific and technical sphere has not yet become the basic element of the socio-economic development of society. In order to implement the strategic directions of scientific and technological development, it is necessary to adjust the priority areas for the development of domestic science and technology, identify the causes and factors hindering their development, and determine the real mechanisms for resolving them.

3. Compared with economically developed countries, the conditions for the development of innovation in Kazakhstan have fundamental differences. In particular, in the republic, innovative activity is mainly carried out on the basis of attracting foreign direct investment.

4. Along with direct investment, new technologies and new management come to the country. For most enterprises, the acquisition of foreign technologies and licenses is a great incentive, as this allows them to enter the world market. At the same time, an uncontrolled flow of foreign technologies can lead to a suppression of the development of the national scientific and production complex, which creates a real danger of the emergence of technological dependence of domestic industry on foreign developments.

5. In Kazakhstan, in the conditions of limited possibilities of the state budget (annual expenditures on science from the republican budget do not exceed 0.2% of GDP) from the funds allocated for basic and applied research, it is practically impossible to allocate a share directly to bring the results of scientific research (development) to mass production. In this regard, it is necessary to provide for an increase in the annual budget for scientific and technological development in the republican budget and bring it up to 2% of GDP. In addition, in order to complete and promote the most promising developments on the market, it is necessary to form a network of state and non-state regional innovation funds and centers, and to attract extra budgetary funds more widely for these purposes.

6. The republic does not have a system for training personnel for the innovation sphere. The main reasons for this are the significant weakening of the connection between the higher education system and applied science and production, and the lack of domestic curricula, textbooks and manuals on innovation, corresponding to state education standards.

Conclusion. In this regard, state support and priority training of scientific personnel for the branches of science that are of paramount importance for overcoming the technological lag and structural restructuring of the Kazakhstani economy is necessary. It is necessary to create real conditions for the integration of the country's universities with research institutes and research centers, taking into account the personnel potential, the material and technical base of the needs of innovative development and the creation, on its basis, of scientific and educational complexes in priority areas of scientific research.

Э.М. Әдипетова, Р.К. Сабирава, Д.Ж. Жасталапова, Н.А. Рзагалиев, Н.И. Габдуллин

Х.Досмұхамедов атындағы Атырау мемлекеттік университеті, Қазақстан

ҚАЗАҚСТАН ЭКОНОМИКАСЫНДА ИННОВАЦИЯЛЫҚ ИНФРАҚҰРЫЛЫМДЫ ҚҰРУ ТӘРТІБІ

Аннотация. Бүгінгі таңда Қазақстан өзінің бәсекеге қабілеттілігін арттыру мақсатында өзінің көп құрылымдық экономикасын түбегейлі қайта құрып келеді, мұнда технологиялық қайта құру – технологиялық деградацияны жеңу, қазіргі бесінші және болашақ алтыншы технологиялық құрылымдардың технологиясын игеру – бірінші кезектегі үлкен мәнге ие мәселе. Қазақстан алдында әлеуметтік-экономикалық және қоғамдық-саяси қатынастардың барлық жүйесін қарқынды жаңарту міндеті тұр.

Қазақстан экономикасының дамудың инновациялық жолына өтуі инновациялық қызметтің дамуына ықпал ететін заңнамалық базаны жүйелі түрде жаңартусыз мүмкін болмайды. Инновациялық инфрақұрылым дегеніміз – инновациялық кәсіпкерлерге консалтингтен бастап, алғашқы маркетингтік зерттеулерден бастап және бизнес-жоспарлар құрудан бастап, инновациялық салаларды ұйымдастыруға арналған қызметтердің толық пакетін ұсыну үшін қажет материалдық-техникалық базасы, дайындалған кәсіби кадрлар және ғылыми және қаржы институттарымен ынтымақтастықтың қалыптасқан тетіктері кіретін кәсіпорындар кешені. Үй-жайларды, өндіріс орындарын, коммуналды жеңілдікпен жалға берумен аяқталады қызметтерді және т.б. жатқызуға болады.

Осылайша, инновациялық даму стратегиясының сәтті іске асырылуы адами, өндірілген және табиғи капиталды тиімді пайдалануға, Қазақстанның әлеуметтік дамудың жаңа деңгейіне және әлеуметтік құрылымға көшуіне негізделген тұрақты өсуге әкелетін Қазақстан экономикасының құрылымындағы сапалы өзгерістердің іске асырылуына ықпал етуі керек.

Жаһандандудың және қаржылық тұрақсыздықтың қазіргі сын-қатерлеріне сүйене отырып, әлемдік нарықтардағы бәсекелестіктің артуы, ғылым мен инновацияның өсіп келе жатқан ролі, адами әлеуеттің дамуы, Қазақстан Республикасының макроэкономикалық саясаты құрылуы керек.

Әлемдік нарықтағы елдің бәсекеге қабілеттілігін арттыру үшін жоғары технологиялық өндірістерді белсенді дамыту және олардың негізінде тиімді ұлттық инновациялық жүйені құру қажет.

Осыған байланысты, ғылымның салалары үшін ғылыми кадрларды мемлекеттік қолдау және басымдықпен даярлау қажет, олар технологиялық артта қалуды және Қазақстан экономикасын құрылымдық қайта құруды еңсеруде маңызды болып табылады. Кадр әлеуетін, инновациялық даму қажеттіліктерінің материалдық-техникалық базасын және оның негізінде ғылыми және ғылыми-техникалық базаны құруды ескере отырып, еліміздің жоғары оқу орындарының ғылыми-зерттеу институттарымен және ғылыми орталықтармен бірігуіне нақты жағдайлар жасау қажет. Ғылыми зерттеулердің басым бағыттары бойынша оқу кешендері де қарастырылуы қажет.

Түйін сөздер: инновациялық инфрақұрылым, экономика, трансформация, технопарк.

Э.М. Әдіетова, Р.К. Сабинова, Д.Ж. Жасталапова, Н.А. Рзагаліев, Н.И. Габдуллин

Атырауский государственный университет имени Х. Досмухамедова, Казахстан

ОСОБЕННОСТИ ФОРМИРОВАНИЯ ИННОВАЦИОННОЙ ИНФРАСТРУКТУРЫ В ЭКОНОМИКЕ КАЗАХСТАНА

Аннотация. Сегодня в Казахстане происходят радикальные преобразования его многоукладной экономики с целью повышения конкурентоспособности страны, где главное значение приобретают технологические трансформации – преодоление технологической деградации, освоение техники современного пятого и перспективного шестого технологических укладов. Перед Казахстаном стоит задача динамичной модернизации всей системы социально-экономических и общественно-политических отношений. Переход экономики Казахстана на инновационный путь развития невозможен без систематического обновления законодательно-правовой базы, которая благоприятствует развитию инновационной деятельности. Инновационная инфраструктура представляет собой комплекс предприятий, включающий материально-техническую базу, обученный профессиональный персонал и отлаженные механизмы сотрудничества с научными и финансовыми институтами, необходимые для предоставления инновационным предпринимателям полного пакета услуг по организации инновационных производств, начиная с консультирования, начальных маркетинговых исследований и написания бизнес-планов и заканчивая предоставлением льготной аренды помещений, производственных мощностей, коммунальных услуг и пр.

Таким образом, успешная реализация стратегии инновационного развития должна способствовать проведению качественных изменений в структуре экономики Казахстана, которые приведут к ее устойчивому росту, основанному на эффективном использовании человеческого, произведенного и природного капитала, выходу Казахстана на новый уровень социального развития и устройства общества. Исходя из современных вызовов глобализации и финансовой нестабильности, усиления конкуренции на мировых рынках, возрастания роли науки и инноваций, развития человеческого потенциала должна строиться макроэкономическая политика Республики Казахстан. Для повышения конкурентоспособности страны на мировом рынке необходимо активно развивать высокотехнологичные отрасли и на их основе строить эффективную национальную инновационную систему.

В связи с этим необходима государственная поддержка и приоритетная подготовка научных кадров для отраслей науки, имеющих первостепенное значение для преодоления технологического отставания и структурной перестройки экономики Казахстана. Необходимо создать реальные условия для интеграции вузов страны с научно-исследовательскими институтами и исследовательскими центрами с учетом кадрового потенциала, материально-технической базы потребностей инновационного развития и создания на его основе научных и образовательные комплексы по приоритетным направлениям научных исследований.

Ключевые слова: инновационная инфраструктура, экономика, трансформация, технологические парки.

Information about authors:

Adietova Elmira Mizamgalievna, Ph.D., acting Associate Professor of Atyrau State University named after H. Dosmukhamedov, adiet_elm79@mail.ru, <https://orcid.org/0000-0001-9891-8706>;

Sabirova Rysty Kuandykovna, Ph.D., associate professor, head of the Department of Economics at Atyrau State University named after H. Dosmukhamedov, sabirovarysty@mail.ru, <https://orcid.org/0000-0002-9947-6564>;

Zhastalapova Dinara Zhastalapyzy, graduate student of the Department of Economics of Atyrau State University named after H. Dosmukhamedov, Dikon14dikon@gmail.com, <https://orcid.org/0000-0002-3860-7161>;

Rzagaliev Nursultan Abzalovich of the department – undergraduate of the department of "Economics" of the Atyrau State University named after H. Dosmukhamedov, nurim0@mail.ru, <https://orcid.org/0000-0003-1033-1738>;

Gabdullin Nurlan Imangazievich, Ph.D., acting associate professor, nurza_9_7@mail.ru, <https://orcid.org/0000-0001-6685-6643>

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