

# ҚАЗАҚСТАНДАҒЫ ИННОВАЦИЯЛЫҚ ЖӘНЕ ИНДУСТРИАЛДЫҚ САЯСАТТЫ ЖҮЗЕГЕ АСЫРУ ТИІМДІЛІГІ

## ЭФФЕКТИВНОСТЬ РЕАЛИЗАЦИИ ИННОВАЦИОННОЙ И ИНДУСТРИАЛЬНОЙ ПОЛИТИКИ В КАЗАХСТАНЕ

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### **The development of social infrastructure in the innovation economy**

The article considers the content and significance of the social infrastructure. It defines the composition and structure of social infrastructure: social infrastructure and socio-cultural infrastructure. Much attention is paid to education as an integral part of the social infrastructure. The most important factors that influence the nature of managerial decisions in the field of education in the innovation economy were identified. Practical recommendations for the improvement of social infrastructure taking account the scientific management system were proposed.

*Key words:* social infrastructure, education, social development, human potential, human capital, educational services, social capital, innovation, social factor, professional skills

In the modern context social infrastructure is an important characteristic of the degree of economic and social development, the rate of the breadth and the depth of use of material opportunities for rational human activity, as well as an indicator of the social economy of the state.

Social infrastructure in its economic nature on the one hand is the part of the social sphere of the state (society), which in turn is the part of the socio-economic structure of the state as a formal institution of society. On the other hand, in terms of involvement in the economic and financial relations between the participants of the market, it is a subset of a complete infrastructure of the economy, as the sphere of the production of socially important goods and services.

Speaking about the infrastructure as an economic category as a whole, it should be noted that it is part of the economic relations of material production sphere, which would produce a large number of final products. It is also an integral part of the productive forces of society, ensuring the normal operation of enterprises.

The emergence of infrastructure is closely related to material production, which development gives rise of new forms of production, servicing and integrating with them branches and forms of activity. The growth of labor productivity in the sphere of material production releases more and more of society's resources to serve the public. Thus, the emergence of infrastructure is a direct result of the development of the productive forces of society, and its content is determined by the internal economic unity of incoming industries and specific functional purpose of each one.

Characteristics of separation of the social infrastructure in individual subsystem of economic development are:

- general conditions of the process of social reproduction,
- complex internal structure with distinguished parts, links, objects.

The basis of the division of the social infrastructure with parts and links is the common functionality of the components in the process of social reproduction, that is, orientation of objects on the creation of conditions to meet the needs of a particular circle of society, population and production needs.

In the most common sense, social infrastructure is divided into social and household and socio-cultural parts. Social and household infrastructure aimed at creating conditions for the reproduction of human beings as a biological (through household environment) to meet him/her needs for adequate living conditions. Social and cultural infrastructure contributes to the reproduction of spiritual, intellectual (through cultural and educational environment), and to a large extent the physical characteristics of the individual, the formation economically active person that meets certain requirements of the society to the quality of the labor force (Table).

According to the table social and household infrastructure consist of some components: housing and communal services, consumer services, trade and food service, passenger transport and telecommunication services for the population, etc. Social and cultural infrastructure covers health care, recreational services, physical culture and sports, social security, education, culture and art, places of worship, etc.

Table

**The content and significance of the social infrastructure**

Social infrastructure	
Social and household infrastructure	Socio-cultural infrastructure
<ul style="list-style-type: none"> <li>- Housing and communal services;</li> <li>- Consumer services;</li> <li>- Trade and food service;</li> <li>- Passenger transport and telecommunication services for the population, etc.</li> </ul>	<ul style="list-style-type: none"> <li>- Health care;</li> <li>- Recreational services;</li> <li>- Physical culture and sports;</li> <li>- Social security;</li> <li>- Education;</li> <li>- Culture and art;</li> <li>- Places of worship, etc.</li> </ul>

Social infrastructure plays a secondary role in relation to the basic industries of material production. The emergence of elements of social infrastructure related to the development of the productive forces and the deepening of the social division of labor, where the natural conditions of production activities were supplemented by artificial, caused by the need to set-closing processes and the organization of the manufactured product sales.

Social infrastructure becomes an important factor in ensuring the competitiveness of the national economy, the capital that is concentrated by developed countries to maintain the monopoly in the geopolitical space. The role of social infrastructure in the sustainable socio-economic development, growth the competitiveness of states and strengthening their positions on the world market and in the global economic community is constantly growing.

The role of education as an integral part of the social infrastructure in the formation of national competitiveness is increasing and supported by numerous studies. According to Lester Thurow, professor of economics at New York University, «in the XXI century education and qualification of the labor force will become the dominant tool of competition» [1]. This is due to the fact that in today's dynamic development of society, the complexity of the technical and social infrastructure such as information becomes a strategic resource as traditional material and energy resources. Modern information technology to create, store, process, and provide effective ways of presenting information resources to the consumer, have become an important factor in the life of society and the means to improve the efficiency of the management of all areas of public life. The level of information becomes an essential factor in successful economic development and competitiveness in the international arena.

Last decade the economic education became the key factor of the national competitiveness. It is the ability to use knowledge as an economic advantage. While the worldwide geo-economics comes to the fore in the field of international relations, surpassing the geopolitics, the most important competitive advantage of the states becomes their ability to efficiently manage strategic information in all areas of social, political and economic life of the country.

Generally known, that every person throughout the life maintains and updates his/her knowledge through various forms and institutions of education. The need of such knowledge update dictates both by the terms of adaptation to the environment and the objective socio-economic conditions. The path of knowledge for humans is continuous. As noted in the long-term Program of development of education till 2020, «Educa-

tion throughout life» will be the key to successful professional development in a rapidly changing world of advanced technologies. The knowledge gained in a certain stage of professional activity will be insufficient. The knowledge and skills acquired in childhood and adolescence can't guarantee success in life. Successful professional development will involve constant updating of skills and knowledge to meet the rapidly growing professional requirements, changing habitual patterns of education, work and life in general [2].

The higher education system significantly impact on the economy. There is a growing tendency to turn educational services into a factor of innovation as a component of the reproductive process. The economic potential of the education system can be called a measure of innovation, reflecting the impact of the operation of educational institutions on economic development.

The quality of human capital of professionals with higher education is characterized by a measure of the average potential of knowledge and skills possessed by specialists after graduating from high schools and which is largely determined by the amount of money spent on their training. Determining the kind of functional dependence of the potential of higher education in economic development indicators of higher education is a problem. The average value for all professionals in the relevant year received economic benefit from their work is not constant but depends on the duration of the work of the expert, due to the change during the time the level of their qualifications, work experience and other factors.

The potential of organization is characterized by fixed assets' potential of higher education system. The potential of prepared specialists in a certain year depends on both the index of capacity of fixed assets as well as the index of payroll of workers in higher education. The potential of the system of higher education is determined by the degree of use of specialists.

The interaction of the system of education, human development and the national economy is a complex, dynamic system.

One of the main problems of education in the formation of human capital is the lack of goal-setting skills. Therefore, an important means of shaping educational strategy is the development by university the procedures of goals management which is the result of a natural process management improvement in market conditions. In the area of planning there is the focus on the key results of operations, bringing the scheduled tasks to each employee at all organizational levels, creating an environment that encourages employee commitment to managing him (her) self and his/her time. In the implementation of the plans there is greater attention to managing people. In the area of control there is its transformation from formal statement to the multilateral process of discussion of the results achieved, leading to the practical measures to take decisions on the basis of the estimates.

Information economy highlights the skilled creative people who want to realize their creative and organizational skills and have at the same time expanding choice. Previous methods of control, of course, seriously impaired.

The formation of human capital based on educational innovation process is clearly represented in modern universities. Adapting to the constantly changing conditions of operation, in particular, information technology, for high schools, due to the high speed of the changes taking place here is very relevant. In this case, the effective implementation of innovation is a prerequisite for effective functioning of the entire education system of the country, a condition for the creation and accumulation of human capital. Innovation takes the form of new organizational structures of universities, new training programs, curricula and teaching materials, new teaching, information, educational, organizational technologies or their combination, the new status of the organization, etc. The main thing is making new ideas in the form of innovation, i.e. completion of innovation activity and receiving of positive feedback [3].

At present, most of our universities express its active participation in the creation of national human development, the implementation of advanced learning technologies. The potential of education is a set of economic relations arising in the social production between its subjects about the formation, development and use of intellectual abilities.

Education potential has a special role in the structure of human potential. It influences the dynamics of changes in the human potential, the efficiency of its formation and functioning, affects the course of the reproductive process, ensures economic growth, macro-and microeconomic equilibrium [4].

The educational potential of the human potential and professionalism are the key elements of the innovation process, modification of the structure of production in accordance with the requirements of the markets and consumers. Demands of modern life are much broader, more varied and more complex than they were ten or even five years ago. The type of professional thinking gets particular importance as knowledge is just a potential that we need to be able to fully implement. To understand the problem it need to combine

knowledge according the principles of professional methodology of thinking which reflects the individual abilities of the person, the quality of his/her potential.

The massive use of information technology today is characterized qualitatively new level of informational support of education and the main features of the development of open and distance education system of any university. In the educational process due to the formation of stable feedback loops between model components of education and reducing the space-time constraints on the interaction of the subjects of the educational process has changed the traditional model of the organization of the educational process, blurring the distinctions between different forms of development of educational programs, to the convergence of the traditional education system and the system of open and distance education.

In terms of increased competition in the market of educational services the improvement of the quality of vocational education stands as the most important task. Regular work of the students during the entire period of study became possible with the introduction of the rating system in the university. Compare indicators of the potential of the learner in two ways: through the study of the relationship between the values of the parameters during learning and success in the future, expert methods. Experts believe that the best potential expert is shown through his creative work, test scores, testing of the special knowledge.

In our opinion, the current international information and educational resources can be used thanks to today's telecommunication technologies to facilitate the formation and development of national research capacity, improving its quality, ensuring the development of human, intellectual and information resources of the production of goods. The development of these resources provides an efficient formation of the main factors of social production in the information society. For this purpose, consortium of universities and associations, including the International ones are formed [5]. Innovations in teaching creates opportunities for developing and implementing the principles of openness and academic mobility, both on the national level and at the level of international integration.

Thus, we need to place a global bet at human potential, innovative reform of the education system, including higher one. This will provide training in the required amount of a new generation of specialists who have a high-quality potential to realize a sustainable dynamic growth of the domestic economy. As a result, Kazakhstan will be composed of a large proportion of the workforce with higher education for the wider use of science-, educational- and intellect intensive technologies. In this case the economy at all levels will be provided with a new type of highly skilled professionals who can meet the challenges of sustainable development.

The necessary scaling up of higher education activity should be achieved through the expansion of economic relations and the development of market mechanisms in the field of higher professional education. According to these aims, we believe that the structures of all levels of education management, economics, social issues, science and technology policy, employment should ensure continuous monitoring of the market of intellectual work, evaluation of training at different levels and trends, re-training and skills of professionals in demand for educational services, and provide an active government policy on intellectual labor market.

Higher education is intended to ensure the protection of human development at the state level. Therefore, it is necessary to establish institutional arrangements for the communication the system of higher education with the market of educational services and intellectual work.

Monitoring of intellectual labor market is current and prospective evaluation of training at different levels and trends which impacts on the development of additional educational services. Multivariancy of personal educational trajectories on the timing, degree of involvement in the educational environment will ensure the mobility of professionals in the labor market. All of these will not only develop the established market, but also to preserve and protect the national human potential.

The main task of the education system is the creation of the necessary conditions for the formation, development and professional growth of person, based on national and universal values; realization of children's rights to education, training and all-round development, the preservation of the native language, culture, national customs and traditions, to be informed, health care. Creation the conditions for the formation and development of these qualities is increasingly considered as the most important task of the education system of the Republic of Kazakhstan.

The Strategic Development Plan of the Republic of Kazakhstan till 2020 paid enough attention to education support. By 2020 year radical modernization of all levels of education — from pre-school to higher education will be held. It is planned to provide opportunities for learning at every level of education and professional development, acquisition of new knowledge and skills on an ongoing basis throughout the life of a person.

The Government will provide opportunities for pre-school education for all children, regardless of place of residence and family income. Secondary education will be switched to a 12-year education, providing universal compulsory education for ten years and specialized education for two years. The content of training programs will be revised with focus on the development of competencies needed in life and profession. Training of qualified personnel will be linked with plans for the industrialization of the country. There will be a transition to the system meeting the requirements of the modern labor market in the technical, vocational and higher education. Educational standards will be formed on the base of professional standards through the national qualification system.

E-learning will be implemented in secondary, technical, professional and higher education. Institutions of higher education will be provided to academic freedom with the introduction of the principles of corporate management. Improving the quality of education services will be accompanied by improvements in the system of financing education, the expansion of educational infrastructure through the introduction of non-governmental, non-profit agencies, the creation of independent national system of accreditation of educational institutions to international standards and independent ratings, the introduction of elements of corporate governance in educational institutions, including the involvement of the citizens, improvement of educational quality control mechanisms. Thanks to the generous public support the prestige of the teaching profession will significantly increase.

The main objective of modernization is the revival and development of the best traditions of national education, strengthening the country's position in a number of highly educated countries in the world and its integration into the global educational community.

An important consideration in the analysis of social infrastructure of the state, including education in the market conditions is the study of foreign experience. The principles of social infrastructure and its elements emerged in Europe and America. However, a direct transposition of international experience to the Kazakhstan's reality is not appropriate because it is necessary to take into account the specificity of state, organization of management. Thus, it is necessary to find the optimum combination of social infrastructure of the national form of market relations and positive, and most importantly adaptively applicable examples of the functioning of the institutions of social infrastructure in the developed countries of the world community.

To maintain or improve the competitiveness of the education system of any country it needs to be aligned to the needs of ever faster changing world of professionals.

Secondary school should be a springboard for further education of a person and should really help him/her to choose the scope of his/her professional interests. From this point of view, our secondary education is ideal, which in all its weak points gives a person the most versatile information about the world and helps in the formation of personality. In the field of higher education it is needed to create a flexible system of education, which would facilitate the shift of university and would create as incentives for students learning abroad and for inviting foreign students to the country, but has also made it possible to obtain worldwide recognition certificates (diplomas) about the passage of the individual levels of education.

In developed countries the improvement of the educational system for a long time is going by the above described way. In Europe and America there are a lot of different funds that provide students with scholarships to study abroad and organize the training of foreign students in the country. This is due to the fact that the world labor market is global and the battle for skilled workers is global too. The graduates of European universities compete with specialists in Beijing, Sydney and San Francisco. Today, as a result of the global Internet connectivity experts cooperate in international teams — everyone is at home and at the same time they are together on the same project. The level of training is becoming one of the most important factors determining the degree of economic competitiveness and integration of the country into the global economy.

Cooperation and integration into the world educational space is one of the main aspects of the development the home and foreign policy of Kazakhstan. On March 11, 2010 the Committee of Ministers of Education of 46 countries participating in the Bologna process decided on joining Kazakhstan to the Bologna process. The goal of Kazakhstan's participation in the Bologna process is improving access to European education, further enhancing the quality and increasing the mobility of students and staff through the adoption of a system of comparable levels of higher education, the use of loans, issuance to the graduates of Kazakhstan universities the European diploma transcript.

Kazakhstan's accession to the Bologna process was carried out gradually and assumes the creation of the basic assumptions. Kazakhstan is one of the first post-Soviet states in 1997 has signed and ratified the Lisbon Convention on the recognition of qualifications concerning higher education in the European region. Since 2004, the national universities introduced a multi-stage structure of higher and postgraduate education:

Bachelor-Master-Doctorate (PhD). This structure has confirmed by the new Law of the Republic of Kazakhstan «On Education». In recent years, the experience of European countries was studied, the most significant and positive processes were adapted to the practice of Kazakhstan. Kazakhstan's universities participated very actively in this process. As a result, favorable conditions for accession to the Bologna process were created in Kazakhstan between 2007 and 2009.

In accordance with the assumed obligations by the accession to the Bologna Declaration, Kazakhstan has to implement a number of measures until 2020.

In the field of higher and postgraduate education legal framework of education quality assessment are created. It provides for a transition from the principle of monitoring the quality of education to establish a system of quality assurance. Assessment of the quality of education is open and is held by representatives of the academic community, employers, consumers of educational services.

Creation of services of quality assessment will provide objective information about the effectiveness of the education system, allow to plan its development strategy, enhance the responsibility for the learning outcomes at all levels of education. Operation of infrastructure quality assessment will introduce new principles of management at all levels of the education system:

- create a centralized database for analysis and control of the educational system;
- implement information technology into the mechanisms of exchange, processing, storage and reporting of educational statistics;
- implement the information support of decision-making;
- increase the objectivity of the monitoring and evaluation of quality of education, receiving comprehensive information about the education conditions in the region, district and educational organization.

Kazakhstan's accession to the Bologna process opens up great opportunities for universities of Kazakhstan in the implementation of joint educational projects, such as the double-diploma education, mutual recognition of academic courses, international accreditations, etc. The comparability in education is helped to achieve the following objectives:

- formation of educational programs in which all main elements of the learning process (curriculum, teaching methods and assessment requirements for the content of courses and teachers) are compatible;
- automatic recognition of learning outcomes in a partner university by all participants of partnership, which is the guarantee of integration of mobility's element in the educational process;
- the creation of a combined control of the program, issue a joint (on behalf of the participants of the program) diploma or diploma of participating universities on completion of the training. These programs have, as a rule, long-term interest to all participants. They can provide students with the opportunity to purchase additional academic and cultural experience abroad, and universities — with a new opportunity to expand their co-operation and potential capacity.

The entry of Kazakhstan into the European educational space is not only the next step in the process of integration into the world educational space, but also meets the internal needs of the Kazakhstan market of educational services. Main purpose of creation the united educational space is to make Kazakhstan's higher education adequate to international standards to improve the quality and the gradual integration with the world community.

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### **Әлеуметтік инфрақұрылымның инновациялық экономикадағы дамуы**

Мақалада әлеуметтік инфрақұрылымның мәні мен маңызы қарастырылған. Әлеуметтік инфрақұрылымның құрамы мен құрылымы анықталған: әлеуметтік-тұрмыстық инфрақұрылым және әлеуметтік-мәдени инфрақұрылым. Білім беруге әлеуметтік инфрақұрылымның басты бөлігі ретінде көп көңіл бөлінген. Білім беру саласының инновациялық экономика жағдайындағы басқару шешімдеріне әсер ететін басты факторлар анықталды. Әлеуметтік инфрақұрылымға ғылыми басқару жүйесіне байланысты тәжірибелік ұсыныстар шешім қабылдауға ұсынылды.

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### **Развитие социальной инфраструктуры в инновационной экономике**

В статье рассмотрены содержание и значение социальной инфраструктуры. Определены состав и структура социальной инфраструктуры: социально-бытовая инфраструктура и социально-культурная инфраструктура. Большое внимание уделено образованию как составной части социальной инфраструктуры. Выявлены наиболее значимые факторы, влияющие на характер принимаемых управленческих решений в сфере образования в условиях инновационной экономики. Предложены практические рекомендации по совершенствованию социальной инфраструктуры с учетом системы научного управления.

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### **Развитие инновационных процессов как условие экономического роста в Казахстане**

В статье раскрыта сущность инновации как широкого и разнообразного по значимости термина. Обобщен опыт исследования инновационных процессов за рубежом. Авторами делается вывод о том, что инновационная деятельность Казахстана относится к числу главных факторов развития экономики республики. Анализируется эффективность расширения масштабов инновационной деятельности в стране. Обоснована целесообразность создания в будущем конкурентоспособной инновационной экономики в Казахстане.

*Ключевые слова:* инновация, процесс, деятельность, развитие, цикличность, инвестиции, конкурентоспособность, инновационный климат, механизм, инновационная политика.

#### *Краткий обзор изучения инновационных процессов за рубежом*

Инновация — термин широкий и разнообразный. Трактовки данной категории могут различаться в зависимости от количественного и качественного уровня экономического анализа.

При мониторинге инновационной деятельности надо учитывать, что инновация — это устойчивые, внедренные на рынке какая-то продукция или процесс, которые широко используются не одним субъектом хозяйственной деятельности [1–3].