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Institutional factors of development of innovative performance in the Republic of Kazakhstan

This article focuses on the mechanism of state regulation of innovative sector. The authors noted that despite the increase in the number of innovative enterprises, the level of innovative performance is still very low and constitutes only 8.1 % of total output. Therefore, government policy ought to create relevant conditions for rising the scale of innovative performance of kazakhstani enterprises. It might also be significant to focus on measures aimed at creating an enabling environment that spurs innovation. According to the authors, every product manufactured incorporates the contribution of intellectual application of individual employees. Also, this article highlights that Kazakhstan producers lack the experience of bringing scientific research to the goods market and lacks highly qualified specialists in the field of project management. The authors further highlights the institutional framework necessary for innovative performance such as legal factors, material factors, financial factors, intellectual factors and state support. In the final section, a summary of the challenges facing the institutional framework supporting innovation in Kazakhstan is presented and some recommendations provided.

Keywords: innovative activity, institutional factors, property, innovative enterprise, innovation.

Innovative performance increases output in the economy and serves as a driving force to other sectors due to its association with high technology. Nevertheless, investment in innovation is very risky and it often bears an uncertain start. This fact supports the call for government involvement in this sector, whose main goal should be to attract entrepreneurship engaged in innovative activities and to reduce the risk factors.

It is important to note that government regulation in the innovation sphere is related to investment policy of the state, which funds fundamental science research and highly risky innovative projects.

In the recent years, there has been increasing numbers of actively innovative enterprises in Kazakhstan. In 2011, 614 enterprises performed with innovative technologies, while 2585 enterprises were considered actively innovative in 2015, which represents a 4.2 increase in their numbers in 2015 (Table 1).

Table 1

Indicators of actively innovative enterprises of Kazakhstan

Indicator	2011 y.	2012 y.	2013 y.	2014 y.	2015 y.
The number of surveyed respondents in the field of innovation, units	10723	21452	22070	24068	31784
The number of actively innovative enterprises and organisations, units	614	1215	1774	1940	2585
Level of innovative performance, %	5.7	5.7	8.0	8.1	8.1

Source: Data of the statistics committee [1].

According to table 1, despite increasing numbers of actively innovative enterprises, the level of innovation performance is still very low and constitutes only 8.1%. Therefore, important direction of government policy ought to create relevant conditions for rising the scale of innovation performance of kazakhstani enterprises. It might also be significant to focus on measures aimed at the creation of a conducive environment for the generation of ideas.

Currently, there is no clear theoretical vision of innovative processes that can be applied in practice. The main challenges of increasing innovation activity of enterprises are:

– The lack of notion of a national innovation system as a holistic solution to the challenge;

– Underestimated institutional context for innovative activity;

– Lack of understanding of the fact that technological knowledge is a difficult distribution mechanism in which an important role is played by the so-called "soft" factors;

– Not enough to reflect the impact of innovative processes context created by macroeconomic policies and other forms of the state regulation.

The problem is complicated by the extremely slow development of regional innovative structures, such as technologically innovative centres, technology incubators, technology parks, designed primarily to ensure the transfer of innovation development in the formation of high-tech production, the role of which is increasingly growing in the developed countries.

Each product manufactured at enterprises incorporated the results of intellectual performance of individual employees. Which is the original, regardless of the degree of novelty, technical, technological, commercial or organizational solutions, that resulted necessary consumer properties in production to consume. These properties include valuable enterprise information about suppliers and buyers, the design features of the products of technological methods of its creation and implementation, as well as many other things, which is the intellectual (intangible) or innovative enterprise resources.

These are the accumulated results of creative activity which allows each employee to earn some profit, and the value of each employee, especially in small businesses, can exceed the value of fixed assets. However, the lack of understanding of the features of registration and accounting of useful information for the company often does not allow to include it into the economy, along with other assets in order to reduce costs and generate additional income. At most companies, it can be seen that a situation where the products are manufactured, receives the proceeds, and the technology works for the production which is not capitalized.

Definitely, this analysis of the factors and conditions from the point of maximum realization for intellectual capital through the development of effective intellectual property market can be extended up to detailed sub-factors.

However, the analysis carried out above, in our opinion, is enough to make a general statement which could be stated as: the position of innovative activities of enterprises in Kazakhstan is difficult to estimate even in the stage of formation. There is a development of separate important components of a system of registration and protection of property rights, though not comprehensive.

An analysis of scientific publications and materials revealed concerns about government agencies in the development of various aspects of innovative performance of enterprises shows that the overwhelming majority of problems faced are within the legal arrangement [2, 3].

Another factor not taken into account today, in our view, is to ensure the protection of intellectual property in the implementation of innovative projects. In our opinion this is extremely important as an innovative development strategy in Kazakhstan becomes decisive in its implementation, which is going to be increasingly involved in the intellectual capital of the country, creative collectives and individual scientists.

The success of enterprises and producers is directly dependent on the ability to supply the market with competitive products with high consumer properties, the production of which requires the use of new scientific and design development with a high technical level and provide an appropriate legal protection.

Table 2

The volume of innovative products of enterprises by Kazakhstan regions (mln, tenge)

Region	2011 y.	2012 y.	2013 y.	2014 y.	2015 y.
1	2	3	4	5	6
The Republic of Kazakhstan	235962,7	379005,6	578263,1	580386,0	377196,7
Akmola	9822,5	19902,1	18205,7	33801,6	13217,2
Aktobe	16880,9	6542,4	8300,6	4454,4	1838,8
Almaty	5498,1	13288,0	13153,8	16608,9	15699,2
Atyrau	1828,1	4772,2	38078,2	18655,3	7506,1
Zhambyl	33592,5	99332,1	109378,9	97778,9	13420,9
East Kazakhstan	11251,8	19181,2	19637,4	25250,3	3316,7

1	2	3	4	5	6
Karaganda	24804,9	4399,3	9009,5	5996,5	7506,1
Kostanai	14388,6	30891,5	53731,2	21578,1	23163,7
West Kazakhstan	12453,0	29769,7	35728,9	57633,9	18442,5
Kyzylorda	2281,3	3645,0	6641,7	4761,2	47252,6
Mangistau	618,6	3609,0	1395,4	1546,8	6930,3
Pavlodar	73279,0	97620,0	83368,0	83070,6	61465,6
North Kazakhstan	1469,5	6098,3	16028,0	16500,4	1838,3
South Kazakhstan	15374,0	22588,7	33177,5	45153,5	1234,6
Astana city	1818,6	4787,0	119923,4	125507,0	111239,6
Almaty city	10601,4	12579,1	12504,9	22088,6	38876,9

Source. Data of the statistics committee [1].

From data in Table 2 above, in 2015 the volume of innovative products and services produced by domestic producers increased by 1.5 times compared to 2011 and amounted to 377.2 billion tenge. This suggests that the original innovative offers such as technical, organizational, financial and economic in the foundation of an innovation project, with its successful realization in real life can significantly change the existing enterprise production cycle to ensure the stability of the enterprises, as well as guarantee the receipt of real income.

In other words, the successful promotion of products (goods) on the market (both external and internal) is in direct relation to the innovation provided to the manufacturer. As can be seen from table 2, the innovative product is not evenly distributed across the regions of Kazakhstan. Accordingly, this has affected the level of innovative performance of enterprises by regions of the Republic of Kazakhstan (Fig. 1).

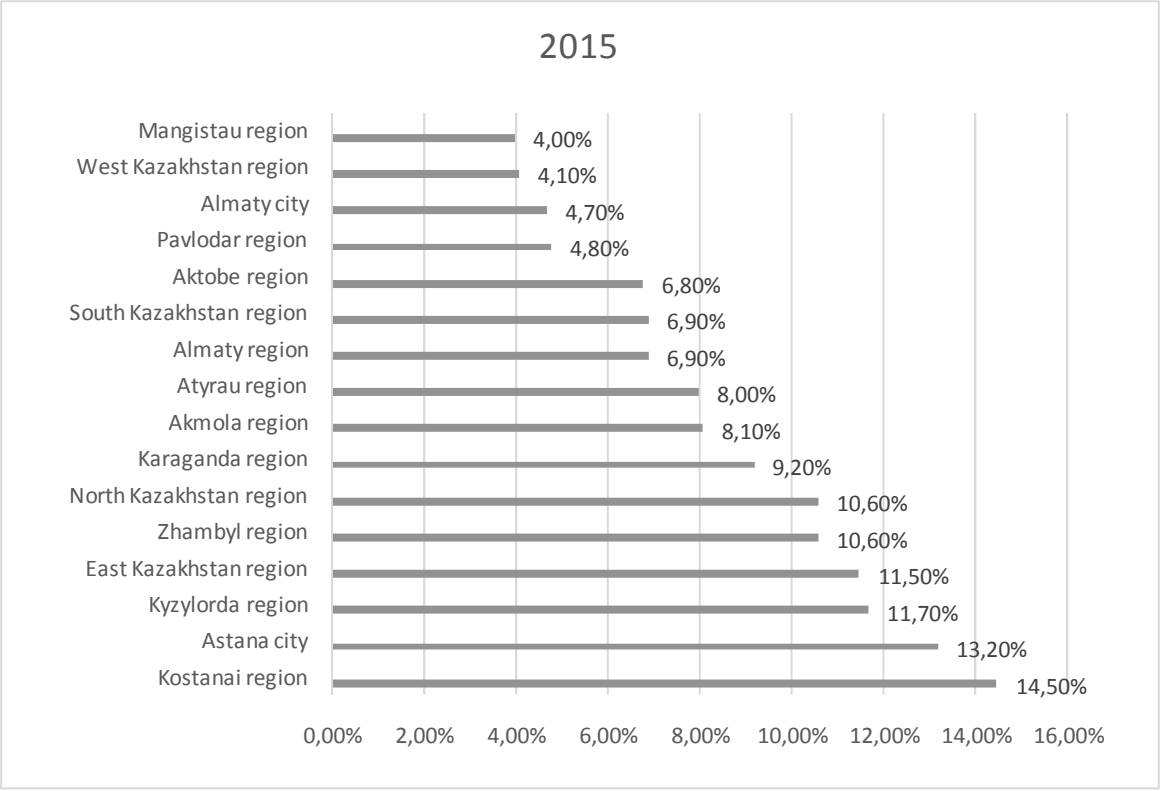

Figure 1. The level of innovative activity of enterprises by regions of the Republic of Kazakhstan for 2015

These data suggest that the level of innovative activity leading position occupied by Kostanay region (14.5 %), Astana city (13.2 %), Kyzylorda (11.7 %) and East Kazakhstan regions (11.5 %). The level of innovative activity in Mangistau (4.0 %) and West Kazakhstan (4.1 %), the regions lag behind other regions of 2-3. These problems stem from the fact that the Kazakhstani producers lack the experience of bring-

ing scientific research to the level of the goods market and the lack of highly qualified specialists in the field of project management. In this regard, it is necessary to arrange internship for Kazakhstani specialists in leading foreign research institutes and companies, and bring into the country highly qualified foreign specialists to train local personnel.

Providing innovative activity of businesses are directly related to the innovation infrastructure as it is the most effective tool in the introduction of new production technologies.

Development of an innovative project based on the results of creative performance of an individual or of the creative team are obtained in the course of research and development activities and constitute the intellectual property of the author (authors) or others, including employers who is lawfully moved right on the new scientific design and engineering solutions.

It follows that at the stage of development of innovative projects from planning to implementation, one should pay special attention to the development of activities relating to the provision of legal protection of intellectual property (inventions, industrial designs, computer programs, databases, trademarks, and so on), as well as effective management is obtained the exclusive rights to these objects, with obligatory observance of the holders' interests of intellectual property rights and their creators (authors).

On the other hand, there is another important issue, which could be a key in the innovation system that is a competent management. Already at the initial stage of drawing up innovative projects and programs should address issues related to intellectual property management and the success of the introduction of new technology to a large extent. Which will depend on what type of ways to motivate the scientific and technical staff will be applied. The solution of these issues directly related to the fact that what strategy will select the management of an enterprise. In other words, the efficiency of enterprises depends not only on optimal control by the production, but also on the management of intellectual property in the possession of the company, on how to ensure the protection of rights to existing enterprise inventions, trade marks.

New economic conditions in the market are required to consider issues of legal protection of intellectual property in the development of innovative products and release it to the market as the most important priority for the company. Take them to the number of secondary, it means businesses are doomed to failure plans. Determining on the feasibility of the conversion of intellectual resources in the intellectual property and intangible assets of the company, their evaluation, selection of an effective form of legal protection, the use of other intellectual property management procedures are the most important components of management qualification, above all the innovative enterprise.

To a large extent, the success of an enterprise to achieve its goals in the innovative project depends on those who have developed this innovative project to implement it, put into practice. Experience shows that if the team on the implementation of the innovation project will be included or where appropriate, be involved as a consultant specialist in the field of industrial property protection, the search for answers to the issues that arise in any enterprise in the implementation of the planned on innovation plans will be more effective and optimal [4].

Institutionalization of innovation is leading to the development of the activity of enterprises in their essential content that is focused on the implementation of the innovation which is possible subject to a number of factors. These factors lead to the realization of the complex institutional arrangements for the creation and introduction of innovations to the final user that allows to realize the strategic goals of the organization. Institutional factors are not only influence, but also determine the development of innovative activity of organizations as a core mechanism of development of innovative performance. This occurs by attracting material and industrial, financial and human resources that can ensure the implementation of the process of developing and implementing innovations.

Institutional factors of innovation contribute to the implementation of the enterprise production program aimed at introducing innovations, which ensures its competitiveness in different types of markets [5].

The institutional factors of innovative activity are: legal factors, material factors, financial factors, intellectual factors and the state support of innovation activity (Fig. 2).

The impact of institutional factors on the development of innovation depends on the infrastructure and institutional innovation structures such as industrial parks, research and innovation and technology centres, business incubators, research institutions, etc. These structures realize food, human, social, technological, technical innovation, which requires state support in the form of innovative projects and socio-economic programs.

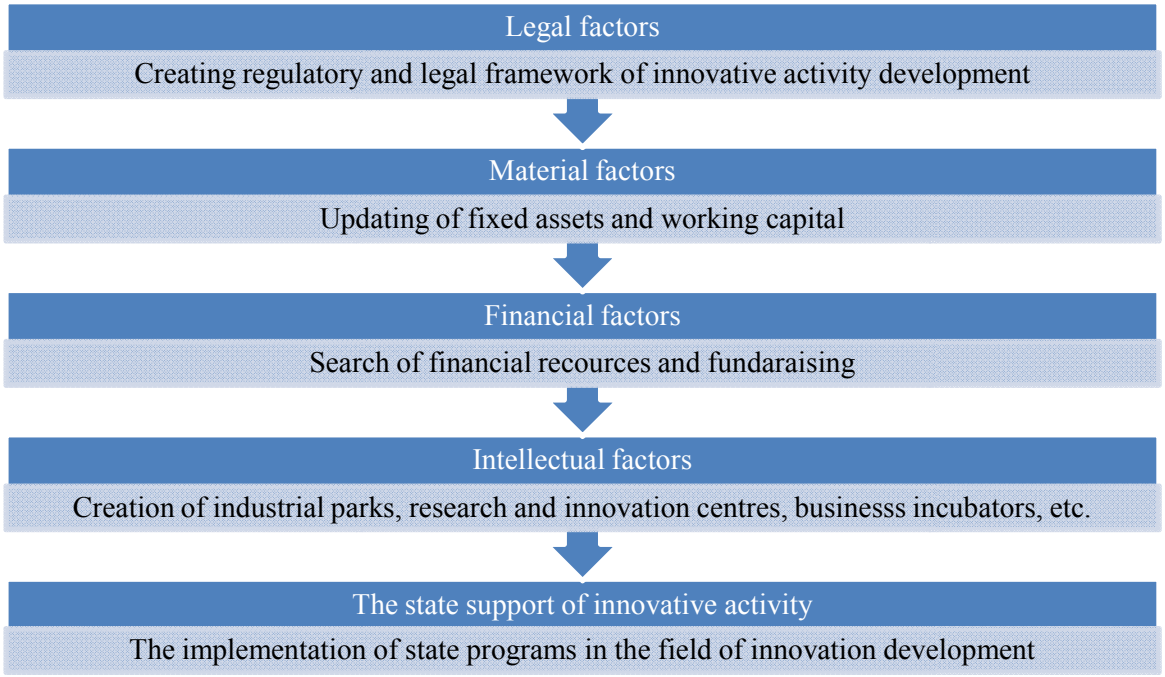

Figure 2. Interactions of institutional factors of innovative activity development

The concept of industrial-innovative development of Kazakhstan for 2015-2019, where is highlighted the strengths and weaknesses of the industrial potential of the country as well as the opportunities and threats to its development [6].

The strong points for industrial development are:

– High availability of natural resources;

– Macroeconomic and political stability;

– The availability of existing industrial policy, supported by a system of development institutions, state holdings and national companies;

– A favourable business climate.

The Republic of Kazakhstan is ranked 6th in the world in terms of mineral resources, the 10th place in the world in terms of proven hydrocarbon reserves and is the largest exporter of uranium. Rich reserves of mineral resources provide the basis for active development of the country's mining industry. In the depths, where is identified 99 of the 117 components of the periodic table of chemical elements of which 70 have been explored and 60 elements are extracted. The northern part of Kazakhstan has a wind map attractive for the development of wind power. The southern part of Kazakhstan has a sufficient density of the solar activity.

The Republic of Kazakhstan has sufficient foreign exchange reserves, a substantial amount of funds in the National Fund and a stable political system for maintaining macroeconomic and political stability.

Legally formed and approved a system of development institutions and government support measures. National companies create a framework for an active industrial policy of the state.

Weaknesses and Barriers of industrial-innovative development include:

– Lack of investment activity in the manufacturing sector;

– The limited availability of the required skill level of human resources;

– Infrastructural limitations for access to world markets;

– Bottlenecks in infrastructure (transport and logistics, energy, water);

– Low share of small and medium businesses under the dominance of state-owned companies;

– Low competitiveness of the national innovation system;

– Low resource efficiency in the industry;

– Imperfect technical regulation.

The investment activity of private companies in the manufacturing sector remains low and lags far behind the level of investment in China, Russia and Brazil. The weak development of the financial market does not allow enough volume and attract financial resources. Domestic companies and foreign investors notice

that the deficit of human resources with sufficient qualifications as a key barrier to the development of production in the country.

Summarizing the study of modern problems of using institutional factors of innovative activity in Kazakhstan, the following points are noted:

Firstly, now businesses are beginning to realize that the exclusive rights to intellectual property are a special type of competitive advantage. With respect to the accelerated development of market-based instruments of creation, protection and realization of economic results of intellectual performance may be a factor contributing to the successful development of innovative processes in Kazakhstan.

Secondly, despite underestimated institutional context of innovation, it is in the process of evolution of institutional systems in the market economy which developed an extensive mechanisms to ensure a favourable innovation climate.

Thirdly, Kazakhstan producers lack the experience of bringing scientific research to the level of the goods market and lack of highly qualified specialists in the field of project management.

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Қазақстан Республикасындағы инновациялық белсенділік дамуының институционалдық факторлары

Мақалада инновациялық сектордағы мемлекеттік реттеу механизміне басты назар аударылды. Авторлар инновациялық кәсіпорындар санының артуына қарамастан, инновациялық қызмет деңгейінің өте төмен деңгейде екендігін, яғни 8,1 % құрайтынын, атап өтті. Сондықтан мемлекеттік саясаттың маңызды бағыты қазақстандық кәсіпорындардың инновациялық қызметінің аясын арттыру үшін жағдай жасау болуы тиіс. Елімізде инновациялық жағдайды ілгерілетуге бағытталған шаралардың маңызы зор болып келеді. Авторлардың айтуынша, кәсіпорындарда өндірілген өнімнің әрқайсында жеке қызметкерлердің зияткерлік қызметінің нәтижелері енгізілген. Бұл өнімнің қажетті тұтынушылық қасиеттері мен сатып алушылық сипаты енгізілген жаңалығына қарамастан, техникалық, технологиялық, коммерциялық немесе ұйымдастырушылық шешімдерге толы. Мақалада негізгі мәселелер ретінде қазақстандық тауар өндірушілердің ғылыми жетістіктерді тауар түрінде нарыққа шығаруда жобаларды басқару саласында жоғары білікті мамандардың жетіспеушілігі атап көрсетілген. Авторлар инновациялық белсенділікті дамытуда мынадай институционалдық факторларды қарастырған: құқықтық, материалдық, қаржылық, зияткерлік және инновациялық қызметін мемлекеттік қолдау. Авторлар Қазақстандағы инновациялық белсенділіктің институционалдық факторларын пайдаланудың қазіргі заманғы мәселелерін зерттей отырып, ұсыныстар берген.

Кілт сөздер: инновациялық белсенділік, институционалдық факторлар, меншік, инновациялық кәсіпорын, инновациялық қызмет.

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Институциональные факторы развития инновационной активности в Республике Казахстан

В статье особое внимание уделяется механизму государственного регулирования инновационной сферы. Авторами отмечается, что несмотря на увеличение числа инновационно активных предприятий уровень инновационной активности очень низкий и составляет 8,1 %. Поэтому важным направлением государственной политики должно быть создание условий для увеличения масштабов инновационной деятельности казахстанских предприятий. Большое значение имеют меры, направленные на формирование в стране среды, благоприятствующей инновациям. По мнению авторов, в каждом товаре, выпускаемом на предприятиях, заложены результаты интеллектуальной деятельности конкретных работников. Это оригинальные, независимо от степени новизны, технические, технологические, коммерческие или организационные решения, в результате которых у продукции появились необходимые потребительские свойства и ее покупают. В статье в качестве основных проблем отмечают, что казахстанским производителям не хватает высококвалифицированных специалистов в области управления проектами, а также опыта доведения научных разработок до уровня рыночного товара. Авторами выделены институциональные факторы развития инновационной активности: правовые, материальные, финансовые, интеллектуальные факторы и показана государственная поддержка инновационной деятельности. Обобщены исследования современных проблем использования институциональных факторов инновационной активности в Казахстане, предложены рекомендации по указанной проблеме.

Ключевые слова: инновационная активность, институциональные факторы, собственность, инновационное предприятие, инновационная деятельность.

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