

Innovation Development in Kazakhstan

Desarrollo de la innovación en Kazajstán

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ABSTRACT:

The main purpose of the article is to analyze modern trends of innovative development of the Republic of Kazakhstan in terms of successful international experience in the implementation of innovation policy and the global challenges of the world economy. The key objects of research are: the current state of technology and innovation in Kazakhstan and foreign countries (based on statistics); global challenges of the world economy; global trends in innovation and new technologies; national innovation system of Kazakhstan. The research in this article analysis the statistical indicators of innovation development in the Republic of Kazakhstan in comparison with the leading technologically developed countries, in particular on such indicators as a share of innovative enterprises, the volume of domestic expenditure on research and development (percentage of GDP), the number of researchers, export of high-tech products.

Key words: innovation, new technologies, export of high-tech products, raw materials, investments, business.

RESUMEN:

El propósito principal del artículo es analizar las tendencias modernas del desarrollo innovador de la República de Kazajstán en términos de experiencia internacional exitosa en la implementación de la política de innovación y los desafíos globales de la economía mundial. Los principales objetos de investigación son: el estado actual de la tecnología y la innovación en Kazajstán y en los países extranjeros (basado en estadísticas); desafíos globales de la economía mundial; tendencias mundiales en innovación y nuevas tecnologías; sistema nacional de innovación de Kazajstán. La investigación en este artículo analiza los indicadores estadísticos de desarrollo de la innovación en la República de Kazajstán en comparación con los principales países desarrollados tecnológicamente, en particular sobre los indicadores como una parte de las empresas innovadoras, el volumen de gasto interno en investigación y desarrollo (porcentaje del PIB), el número de investigadores, la exportación de productos de alta tecnología.

Palabras clave: innovación, nuevas tecnologías, exportación de productos de alta tecnología, materias primas, inversiones, negocios.

1. Introduction

From the moment of acceptance of a course on industrial and innovative development in 2003, Kazakhstan by the results of 2014 reached a maximum in growth of the main indicators of

innovative activity. The positive tendency caused by successful results of realization of the State program of the forced industrially innovative development of the Republic of Kazakhstan.

The experience of such countries as Singapore, South Korea, Finland, China, Israel, India shows that the transition to an innovative model not only possible, but can be very successful.

The export of raw materials plays an important role in economy of the Republic of Kazakhstan. This demonstrates the inefficient use of available technical and production potential. For development of economy large investments are attracted. Thus, 60% of all volume of investment are carried out in oil and gas branches. Investments in the electricity, steel industry and food industries account for about 8%. Such irrational structure of investments into fixed capital is explained, first, by that investments into raw branches give fast return, and secondly, that the foreign investors don't wish transformation of the Kazakhstan producers in competition on the global market of industrial products.

2. Innovative activity of business

In 2014 in relation to 2003 the share of the innovation-active enterprises increased from 2,1% to 8,1%.

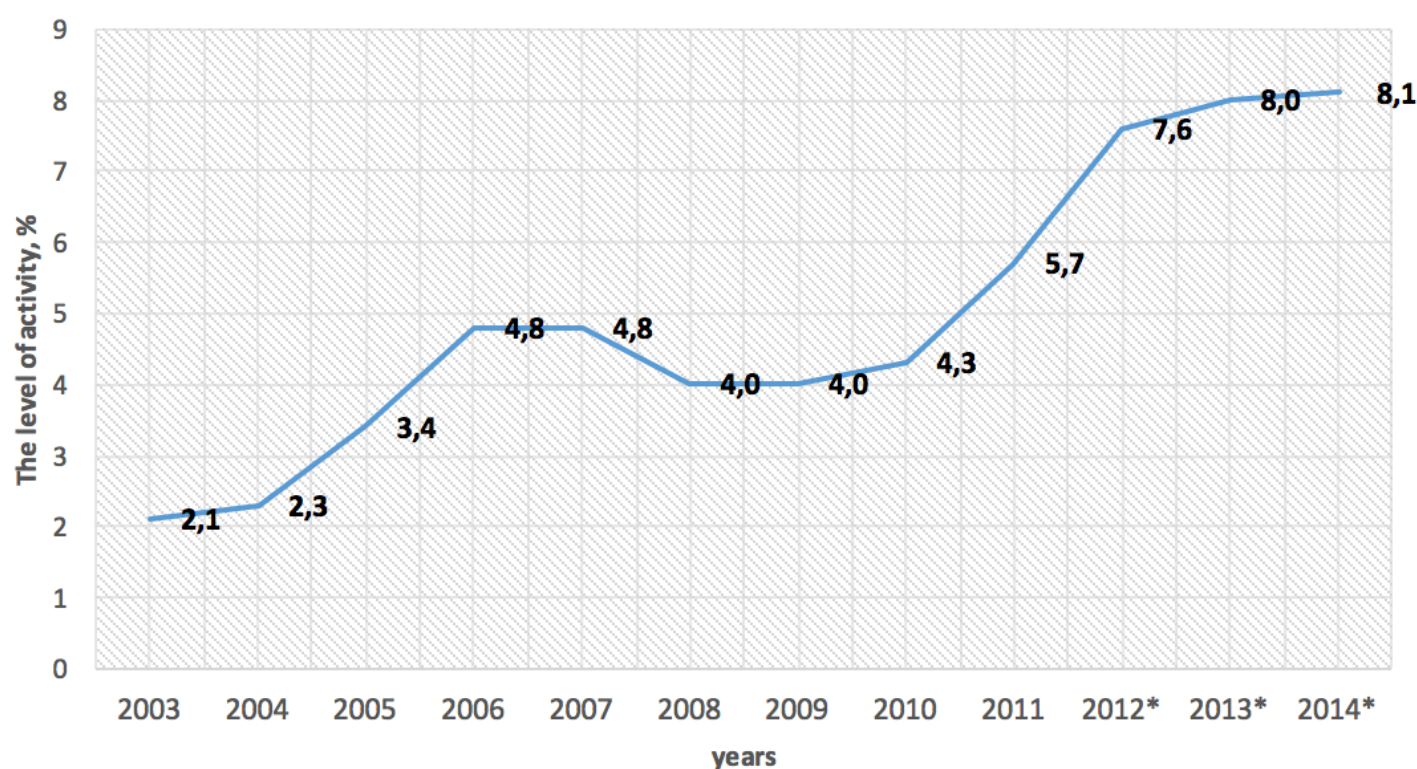


Figure 1. The level of activity in the field of innovation, %
Source: Ministry of National Economy of the RK Committee on Statistics

For comparison: the share of the innovation-active enterprises in the USA is about 50%, among the countries of the European Union the highest rates have Germany (79,3%), Sweden (60%) and Finland (58%). The average value over the countries of the European Union reaches about 53%.

Expenses on researches and development are one of the main indicators of innovative activity on "entrance".

At the end of 2012 the leaders on this indicator were the United States (453 billion USD.), China (293 billion USD.), Japan (151.8 billion dollars).

At the same time, it should be noted the rapid growth of domestic spending on research and development in China, compared with 2008, this indicator increased almost twice.

On scales of domestic costs of R&D Kazakhstan still lags behind technologically developed countries. However, there has been growth in domestic expenditure on research and development in 2012, which amounted to 51.2 billion tenge with growth of 18.2% compared to 2011 (43.3 billion tenge) and 2014 It amounted to 66, 3 billion tenge.

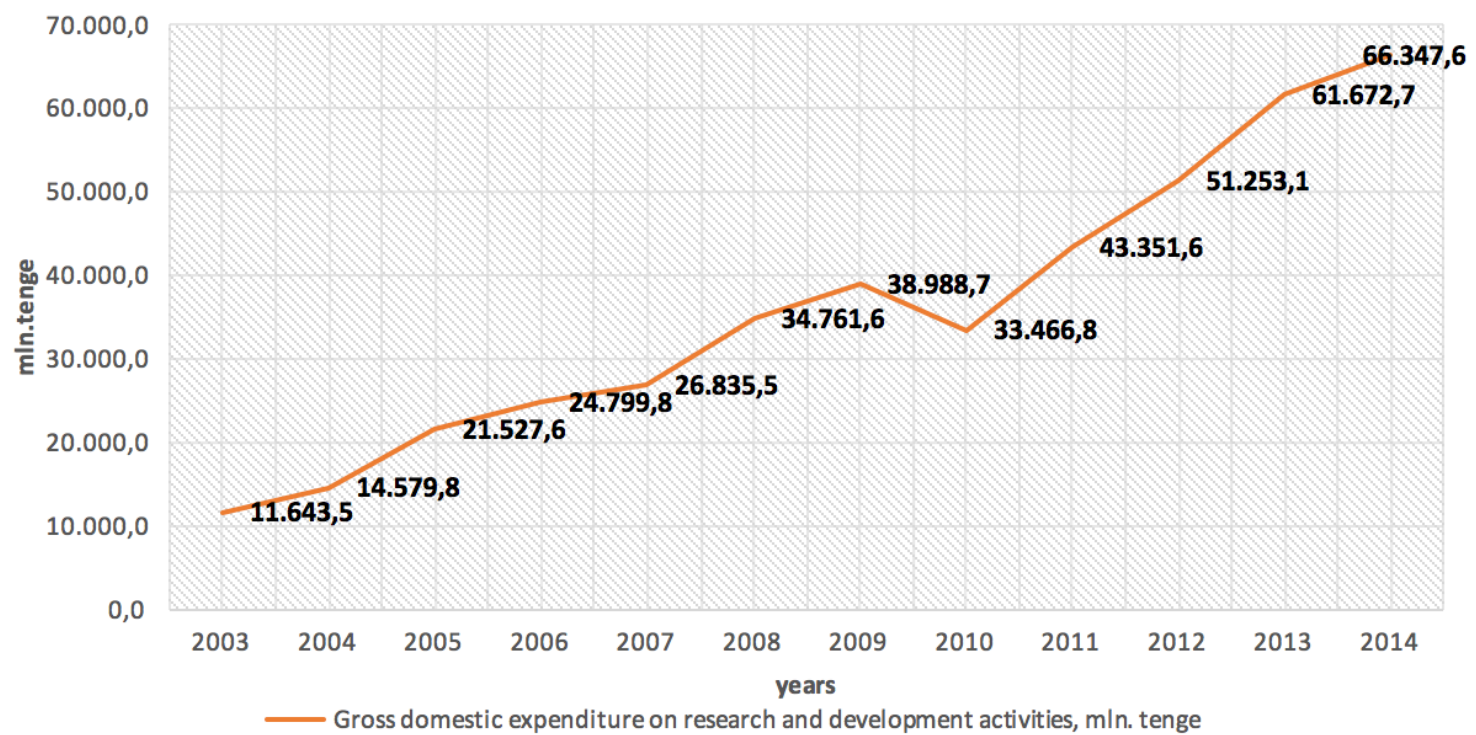


Figure 2. The dynamic of gross domestic expenditure on R&D 2003-2014
Source: Ministry of National Economy of the RK Committee on Statistics

The highest share of domestic expenditure on research and development in the GDP according to 2013 have Israel (4.21% of GDP), South Korea (4.15%), Finland (3.32%), Japan (3.49%).

It should be noted that, according to the Europe 2020 strategy as one of five key target indicators is to achieve an increase in spending for research work 3% of GDP in the European Union.

In 2011, the average value for the EU-28 amounted to 1.94%, which is higher than China (1.84%). Among EU member states, one of the highest rates belong to Finland (3.78%).

The share of expenditure on R&D to GDP in Kazakhstan remains still low – 0,17%, however it is necessary to consider that the domestic scientific system is at a stage of formation and development.

According to the number of researchers, who perform R&D, Kazakhstan is currently concedes to many foreign countries. For example, in terms of the number of researchers per thousand employees Finland surpasses Kazakhstan by 12,2 times, South Korea by 9 times, Singapore by 8 times.

The number of employees engaged in research and development

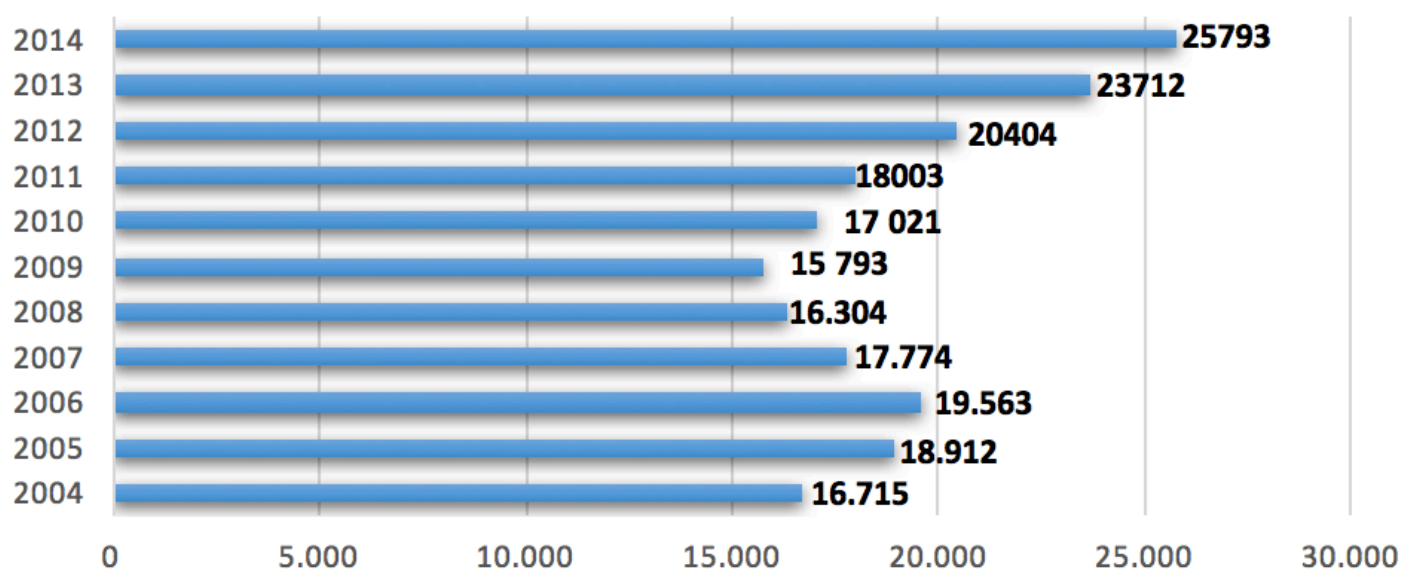


Figure 3. The dynamic of employees engaged in R&D 2004-2014

However, according to Kazakh national statistics on the results of 2012 it was recorded an increase of this indicator to the level of 2008 by 25.2% to 16,304 people, and in 2014 there were 25,793 people employed in research and development areas.

Thus, innovative development in Kazakhstan along with other factors restrains a staff deficit, capable to operate innovative processes and projects. In general, despite certain positive shifts in the field of the scientific sphere the personnel structure of science of Kazakhstan requires effective state support and stimulation.

Table 1. The volume of exports of high technology products in 2003-2012 years. (billion dollars).

Countries	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<i>China</i>	107,54	161,60	214,25	271,17	337,01	381,34	348,29	406,08	457,10	505,34
<i>USA</i>	160,21	176,61	190,86	219,18	228,65	231,13	141,52	145,49	145,27	148,77
<i>Germany</i>	102,87	131,84	142,45	159,01	155,92	162,42	142,45	158,50	183,37	183,35
<i>Japan</i>	105,45	124,04	122,68	126,62	121,42	123,73	99,21	122,04	122,02	123,41
<i>Singapore</i>	76,04	93,76	105,08	124,14	105,55	120,35	97,21	126,98	126,43	128,34
<i>France</i>	56,34	65,35	69,66	80,53	80,46	93,21	83,83	99,73	105,10	108,36
<i>Finland</i>	10,49	10,62	14,49	14,11	15,56	16,66	8,60	5,85	5,35	4,45
<i>Russia</i>	5,63	5,36	3,69	3,83	4,14	5,11	4,58	5,19	5,44	7,06
<i>Kazakhstan</i>	0,20	0,28	0,42	0,99	1,46	2,25	1,80	2,10	2,6	3,5

Source: World Bank

From the above table shows, that in 2009 there was a sharp decline in exports of high-tech products worldwide, including Kazakhstan, the reason for this was the global financial crisis. During the period 2008-2009, almost all countries have negative growth.

However, in 2010-2012 export of high-tech production in the world, including in Kazakhstan began to stabilize.

It should be noted that not only for Kazakhstan, but also for all post-Soviet countries a guarantee of stability of development of export of hi-tech sector is its diversification. It is necessary to create conditions for the maximum diversification of economy, otherwise the threat of the external risks caused by possible sharp fluctuations of a world environment in the world raw markets will accrue.

Thus, according to official data of the World Bank on the results of 2012, according to the index the share of exports of high technology products in Kazakhstan from all world's volume was 0.18%, while in 2009 this indicator equaled at 0.09%. In absolute expression export of hi-tech production in Kazakhstan in 2012 in relation to 2009 grew twice (from 1,8bln. dollars to 3,5 bln. dollars).

In general, the measures taken by the State in stimulation of innovative activity significantly affected in strengthening of Kazakhstan's position in international rankings.

In the conditions of increase of the global competition and new industrial revolution development of the directions in the field of technological and innovative development answering to modern trends of development of world economy as automation, robotization of productions, including intellectual production systems, use of new materials (composites, nanotechnologies), the logistics of new generation, new power technologies, technologies 3D of the press and others set for the country serious problems on creating favorable conditions for preparation of the domestic industry for these calls.

Today, innovation is considered much wider, including not only the achievements of scientific and technological progress, but also social processes that involve the relationship between economic operators and their environment. From this point of view, an innovation represent purposeful change of economic system, the including process of introduction of new advanced methods of the organization and management of human activity. In addition, innovation is a part of the culture, so the pursuit of innovation must be nurtured, and not only from the perspective of stimulating economic growth. It is obvious that only a high level of accumulation of knowledge and culture, improve the professional level of people employed in the production of goods and services can move to innovative development of the economy.

In general, Kazakhstan needs to move from the current response to the challenges of innovation development to its long-term planning.

In this regard, considering the above, elimination of a number of gaps in the legislation in the field of innovations and introduction at the legislative level of the additional stimulating norms, the implementation of which will have a positive impact on increasing the level of innovation activity in the country and creation of a favorable innovation environment.

3. Conclusion

In conclusion of the analysis, we note that the concept of "innovative entrepreneurship" is new for Kazakhstan. The formation of this layer must pass gradually, creating a logical structure. Innovative activity at the enterprises and development of innovative business belongs to such conditions as freedom of creativity and innovative culture on which depends formations of the favorable innovative environment. And among it begins with the creation of specialists, the allocation of funds, overcoming scientific and technological backwardness, raising interest in innovation and its activation. Strengthen the methods of the state stimulation of development of innovative business in Kazakhstan by creation of effective regulatory - legal framework, the formation of the national innovation system and the institution of public-private partnerships, to support research, education and social services, protection of intellectual property, information and personnel support scientific and technical activities.

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