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THE PROBLEMS OF INNOVATIVE DEVELOPMENT OF MANUFACTURING INDUSTRY AND THE INNOVATIVE CAPACITY OF MANUFACTURING ENTERPRISES IN KAZAKHSTAN

Innovation and novelties play a very important role in economic development and are a powerful tool in the fight against crisis. The authors examine the key problems of innovative development of manufacturing industry and innovative capacity of manufacturing enterprises in Kazakhstan.

Keywords: *innovation; innovative development; innovative capacity; competitiveness; manufacturing enterprise.*

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ПРОБЛЕМИ ІННОВАЦІЙНОГО РОЗВИТКУ ПРОМИСЛОВОСТІ ТА ІННОВАЦІЙНИЙ ПОТЕНЦІАЛ ПРОМИСЛОВИХ ПІДПРИЄМСТВ КАЗАХСТАНУ

У статті показано, що інновації, нововведення відіграють важливу роль в економічному розвитку та є потужним інструментом боротьби з кризою. Розглянуто основні проблеми інноваційного розвитку промисловості та інноваційного потенціалу промислових підприємств Казахстану.

Ключові слова: *інновація; інноваційний розвиток; інноваційний потенціал; конкурентоспроможність; промислове підприємство.*

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ПРОБЛЕМЫ ИННОВАЦИОННОГО РАЗВИТИЯ ПРОМЫШЛЕННОСТИ И ИННОВАЦИОННОГО ПОТЕНЦИАЛА ПРОМЫШЛЕННЫХ ПРЕДПРИЯТИЙ КАЗАХСТАНА

В статье показано, что инновации, нововведения занимают очень важную роль в развитии экономики и являются мощным инструментом в борьбе с кризисом. Рассмотрено основные проблемы инновационного развития промышленности и инновационного потенциала промышленных предприятий Казахстана.

Ключевые слова: *инновация; инновационное развитие; инновационный потециал; конкурентоспособность; промышленное предприятие.*

Problem statement. In the environment of integration processes, increased competition related to the establishment of the common free market zone with Russian Federation and Belarus, as well as the intentions of Kazakhstan to enter the World Trade Organisation predetermine the attempt of accelerated transition to innovative economy.

Joining the Customs Union implies increased competition with Russian and Belarussian competitors but it also offers new opportunities. The impact of the "privilege" factor of national companies is diminished and the factors of competitiveness are brought to the foreground. Everything will depend on the one who acquires new technologies and products faster and bring them to the market first. This determines

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the need to analyze the status and the level of innovative capacity of Kazakhstan's manufacturing, and to identify the factors hindering innovative activity at these enterprises. In this respect, the task is set to characterise each and every type of resource and identify both positive and negative trends in their development. At the same time, special attention will be paid to their qualitative characteristics as it can be noticed that over the last few years the volume of industrial products has grown and expenditures on innovation have increased, but the level of new technologies implementation in the industry remains low.

The research on scientific approaches to the given range of problems reveals that the difficulty of the raised issue is linked both to the ambiguousness of theoretical approaches to the interpretation of the "innovation" category, identification of its classification criteria; and to justification of research methodology and forecast of innovative processes. Also, it is connected with the lack of integrated research, methodological development and conceptual approaches to the definition of the term "innovative capacity of the enterprise" and its effective use. Taking into account these reasons, the research on enterprise capacity and its development becomes a relevant task.

Recent research and publications analysis. Nowadays a lot of research is conducted on the innovative development of the economy. Much attention is dedicated to the problems of innovative capacities development at enterprises. Nevertheless, in national science some of its most important points haven't been studied as thoroughly as they should have been. The conducted research shows that works dedicated to this problem cover only certain aspects. There are few projects dedicated to integrated research of innovative capacities of manufacturing enterprises. Each author has formed a particular approach to the understanding of "innovative capacity of the enterprise".

It is well-known that the term "innovation" was introduced for scientific use by the Austrian economist J. Schumpeter. In his work "The Theory of Economic Development" (Schumpeter, 1982) he identified innovation as any possible change which takes place as a result of the application of new or advanced decisions of technical, technological, organisational nature in the processes of manufacture, supply, sales etc.

Foreign scientists like J. Schumpeter (1982), P. Drucker (2007), J. Bright (1968) interpret this definition depending on the object and subject matter of their study but the analysis of various definitions of innovation enables us come to the conclusion that specific contents of innovation comprises changes, and the main function of innovation activity is the function of change. M.V. Karley (2006) studied the formation of innovation policy at manufacturing enterprises.

A.V. Gerasimov (2014), A. Kabanels and L.N. Nekhorosheva (2006) studied the theoretical aspects of innovation.

R.A. Ismailova (2011) studied the innovation model of Kazakhstan's industry development.

A.K. Koshanov (2012) studies the factors of creating a high-tech, competitive national economy.

O. Sabden (2011) pays a lot of attention to the matters of innovative economy in his monograph "Innovative Economy".

Certain theoretical and practical aspects of innovative development of the economy are considered in (Dnisheva, 2012), cluster-based development matters are studied by G.S. Saktaganova (2011). There are various approaches to the definition of the term "innovative capacity of the enterprise". N.S. Somenkova gives the following definition of it: "Innovative capacity of the enterprise is the capability of the enterprise to achieve the set of innovative goals with the help of existent intellectual, material and technical, human and financial assets catered by relevant infrastructure" (Somenkova, 2011). A. Nikolayev (2001) in his article "Innovative development and innovation-oriented culture" considers innovative capacity to be the combination of factors and conditions required to implement the innovative process. Some authors like I.V Shlyakhto (2006) state that innovative capacity is not only the possibility to create and implement innovations, but also the readiness to accept innovations for the subsequent effective use at the level appropriate to the world.

Innovation capacity is sometimes understood as scientific and technological potential; and it is represented as a combination of real and latent scientific and technological resources of enterprise innovation capacity also as diffusion. The vector of such diffusion forces is aimed at increasing and improving the quality of scientific and technological resources of an enterprise (Reshetnikov, 2014).

Most authors agree that in the market economy, which is characterised by high-level competition and uncertainty of market environment, the performance efficiency of any enterprise is determined, to a great extent, by how effectively they use available resources, the combination of which form their resources potential, and the use of that potential to the fullest capacity.

"Innovative potential" shouldn't be understood only as the combination of human, financial, scientific and technical, production and technological and information resources which form the unified system, ensuring successful implementation of innovative activity; but also as an organisational mechanism which is necessary to achieve the set goal in the field of science-intensive technological processes and products.

Unresolved issues. The research of scientific approaches to the given range of problems reveals that the difficulty of the raised issue is linked to: ambiguousness of theoretical approaches, the lack of integrated research, methodological development and conceptual approaches to the definition of the term "innovative capacity of the enterprise" and its effective use. Taking into account these reasons, the research of enterprise capacity and its development becomes a relevant task.

The research goal. Based on the research of innovative development of the economy to discern academic and research propositions on the development of innovative capacity of manufacturing enterprises in the Republic of Kazakhstan.

Key research findings. Nowadays the relevant, strategic tasks of Kazakhstan's economy are the development of national science-intensive industries and the acquisition of new information technologies oriented to getting competitive products and meeting the interests of national economic security by means of keeping and developing manufacturing science and technical potential of the country.

Despite the fact that certain actions are being taken to form and develop the innovative capacity of manufacturing enterprises, at the moment the issue of innova-

tive capacity enhancement of manufacturing enterprises is still relevant, and is one of the main priorities in the development of a competitive economy.

This can be explained by the fact that in Kazakhstan, as well as in other CIS countries, conditions for the formation of innovative capacity at enterprises were examined later than in developed countries, which reached their present stage of innovation-based development by allocating their capital assets, efforts and financial resources to ensure the transition to innovation-based technological updates.

In the 1990s, in Kazakhstan, there was a drastic reduction in the research of strategically important directions of scientific and technological development, there was a fall in the prestige of being a scientist and in the demand for scientific results, there was a decline in innovative enterprise activity, there was an overseas outflow of specialists and intellectual property which led to the weakening of scientific and technological potential and degradation of science-intensive industries.

Kazakhstan, while being at the transitional stage to new market conditions of economy's management, had to solve serious problems related to the economic transformation and formation of the foundations and mechanisms of economy management appropriate for the market economy.

During this transition period, Kazakhstan experienced a number of problems such as: the raw-material orientation of its economy; little integration into the world economy; underdeveloped industrial and social infrastructure; overall technical and technological backwardness; the lack of efficient links between science and industry; low expenditure on etc.

Lack of funding for a number of research projects led to an outflow of young scientist from various fields of expertise, and also moral and physical ageing of material and technical-scientific resources.

The lack of an integrated and systematic approach to management of innovation processes held back the development of the country's innovative capacity and didn't allow determining the priorities for its further development.

Today all necessary conditions for free-flow market economy development have been created in Kazakhstan. Our economy has become one of the most rapidly developing economies in the world.

In the environment of independence and reformation of Kazakhstan's economy, one of the key tasks is the improvement of innovative activity and practical use of scientific and technical achievements, which ensure product competitiveness at the world markets.

In this regard one of the top-priority goals which the government faces is the development of manufacturing innovative activity as well as ensuring stable economic growth, enhancing competitiveness of the country's economy.

According to the set tasks there is an activities process of development and implementation of various measures which have impact on the development of science and innovations in Kazakhstan.

The "Strategy of Industrial and Innovative Development of the Republic of Kazakhstan for 2003–2015" approved by the Decree of the President of the Republic of Kazakhstan dated May 17, # 1096 aims at achieving stable development of the country by means of economic diversification and a shift from raw-material orientated development. While innovations are defined as the main factor designating com-

petitiveness of a national economy, the full use of innovations for further dynamic economy and society enhancement is possible with the help of the focused innovative policy conducted by the state.

One of the essential objectives of the "Strategy of Industrial and Innovative Development of Kazakhstan for 2003–2015" is the implementation of target-oriented investment and scientific and technical programs; control of investment and encouragement of innovative activity, which requires reconsideration and a certain amount of adjustment of the current system of government administration of industrial and innovation development.

At present Kazakhstan has significant scientific and technical potential to implement the objectives set.

To effectively manage the process of state support to innovative activities in Kazakhstan special Law "On Innovation Activity" was introduced on the 3rd of July, 2002 for the first time ever, and ceased to be in force as another Law of the Republic of Kazakhstan "On State Support for Innovative Activities" dated to 23 March, 2006 came into effect afterwards. It stipulates legal, economic and organisational basis for boosting innovative activities in the country.

In Kazakhstan innovative activities are also regulated by the Law of the Republic of Kazakhstan "On Science" dated 9 July, 2001. The provisions of Article 24 of this Law show the directions of state support for innovative activities in the field of science and technology.

The Law "On state support for industrial and innovative activities in the Republic of Kazakhstan" # 534-IV dated 9 January, 2012 was adopted. The Concept of "Innovative Development of the Republic of Kazakhstan till 2030" was then developed. Later rhe "Program on the Formation and Development of National Innovative System of the Republic of Kazakhstan for 2005–2015" was adopted.

These documents cover a wide range of problems in the field of science and innovations in Kazakhstan, as well as provide possible solutions.

In addition to the founding of "Kazakhstan Development Bank" in 2003, the Government established two investment-innovation orientated financial institutions, namely "Kazakhstan Investment Fund" and "National Innovation Fund" which significantly contributed to the R&D development in Kazakhstan.

According to experts, Kazakhstan has entered the industrial phase of its economic development. Now Kazakhstan is striving to set the scene for the transition to the post-industrial society. The transition is impossible without the development of innovative capacities of manufacturing enterprises.

The most important feature of domestic industrial potential is the existence of abundant mineral resources. On the one hand, this fact is considered to be positive for future industrial-innovative development. On the other hand, the significant stock of mineral resources doesn't facilitate the development of high-tech industries, because of the existence of an alternative source of financial resources i.e. export of raw materials.

Kazakhstan has significant scientific and technical potential which enables effective participation in scientific and technical support for the innovative development of the economy. However, the low level of entrepreneur ship development in Kazakhstan, which implements the main types of innovative activities such as the cre-

ation of innovative products and performance of intermediary services related to promotion of the innovative products to the market, is one of the reasons for low innovative activity in the country.

In Kazakhstan the innovative activity of enterprises came up to only 7.6% in 2012. In 2010 only 467 out of 10,937 business entities innovated technologically (in 2009 – 399 enterprises did). However, since 2011 there has been a positive trend in enterprise innovative activities, the level of which came up to 7.6% in 2012. 701 out of 10872 business entities produced the evidence of innovative activity in 2012 (Science and innovations. The Agency of Statistics of the Republic of Kazakhstan, 2012).

Based on the data it can be noticed that the volume of innovative products grew steadily until 2006, but since 2007 (because of the financial crisis) there was a decrease in the volume of innovative products. Since 2010 there has been increase in the production output, and over 2010–2012 the volume of innovative products grew 4.6 times. Over 2005–2012 the volume of innovative products almost tripled, i.e. from 120.4 bln KZT in 2005 to 379 bln KZT in 2012. However, the share of innovative products in GDP fell during the given period from 1.6% (in 2005) to 1.2% (in 2012) (Volume of Innovational Products. The Agency of Statistics of the Republic of Kazakhstan, 2012).

The analysed period reveals a positive trend in the growth of the gross domestic product, and the growth of GDP remains stable whereas it cannot be noticed in the volume of innovative products.

Thus, between 2007–2009 there was a noticeable decrease in the volume of innovative products. This fact proves that during the crisis period Kazakhstan depended greatly on the world economic trends.

At the current stage of development Kazakhstan has all the prerequisites for gradual economic development. These are: excessive natural resources; availability of spare manufacturing capacity; engineering personnel which are sufficiently qualified; cheap labour force with a relatively high educational level; and a surplus in the number of technological processes.

The analysis of the state of Kazakhstan's innovation sector at the present development stage reveals that, despite significant scientific and technical potential there is a disproportion in the availability of innovation possibilities and their real implementation in Kazakhstan practice. Besides, only few enterprises can use their resources efficiently. The problem is connected with the lack of integrated research, methodological development and conceptual approaches to innovative vector of enterprise activity.

Analysis of the components of enterprise innovative capacity. An objective component of innovative capacity of the enterprise is human resources, which is the basis of its formation.

Out of all resources available, only human resources can make other elements of this potential become reality.

Human resources (a leader-innovator interested in innovations; staff who have professional education and experience in R&D; specialists in marketing, planning and forecasting customers' hidden needs) (Korobeinikov, Trifilova and Korshunov, 2000) play a key role in the effective implementation of innovative activity at enterprises.

The research has shown that motivation, development and keeping people as well as the perspectives and opportunities that staff have, are the main factors if activities from the HR management perspective are to be successful.

It is impossible to completely imitate the Western model of innovative development of human resources, as there are certain peculiarities in our culture, mindset and values which are unique.

The problem is that the direct transfer of western patterns of HR management to Kazakhstan enterprises cannot ensure the efficiency of motivation models.

At the moment, at most Kazakhstan enterprises, the system of staff motivation is designed in such a way that it doesn't encourage employees to develop and it doesn't make them interested in long-term work within the same organization. It can be especially noticed while studying the ratio of the length of a working day to the current pay system.

Also, the term "burnout" introduced by an American psychologist H.J. Freudenberger (1974) came into use.

Stressing the relevance of "burnout syndrome," most researchers state that the main reason for growing "workaholism" is the relative balance between reward, work and expenses.

Due to the total ineffectiveness of enterprise management, the best employees have to work a lot more than the average worker. The excessive workload rarely leads to positive results.

It should be noted that salaries of scientific workers in Kazakhstan are quite low compared to those in developed countries, which doesn't encourage young scientists to be engage in R&D.

The next component of innovative potential is that of finance resources which is essential to produce new and advanced types of products, services, industrial processes, technology and systems.

Enhancement of scientific technical and production technological potential of an enterprise depends on the sufficient quantity of this resource.

As for finance resources, it should be noted that the resources allocated to science and R&D sectors are unable to meet the essential requirements so far.

The analysis of internal expenditures on research and development during 2003–2012 reveals that it came up to 51.3 bln KZT in 2012, or absolute increment value increased by 3.44 times (by 39.7 bln KZT) if compared to 2003. The costs were growing rapidly until 2009, whereas in 2010, if compared to 2009, they were reduced by 5.5 bln KZT. Since 2011 there has been a growth in this number which amounted to 51.3 bln KZT. Expenditures on internal R&D decreased in 2010 compared to 2009, mainly due to the disinterest of companies and enterprises in its increase (Gross domestic expenditures on research and development. The Agency of Statistics of the Republic of Kazakhstan, 2012).

If we compare the data received in 2010 with that for 2012, we can conclude that in the given period the expenditures on R&D grew in absolute value by 17.8 bln KZT, or by 53.13%.

The main figures characterizing the dynamics of expenditures on technological innovations in Kazakhstan's industries from 2005–2012 show that, compared to 2004, these costs went up in 2012 by 293 bln KZT, or 8.98 times; although the rate of

change was different (The Agency of Statistics of the Republic of Kazakhstan, 2012). There was a decrease in 2009 and 2011, connected with the financial crisis, as well as with the lack of interest of enterprises in allocating funds to technological innovations. A lot of enterprises are satisfied with the current situation and don't feel the need to strive to increase the competitiveness of their products by means of increasing costs on technological innovations. Dramatic changes were seen in 2011 and 2012.

If the structure is analysed based on financial sources, it can be noticed that costs on technological innovations are paid by means of enterprises' internal assets. On one hand, it can be viewed as a positive trend; though on the other hand, in many cases national enterprises don't have enough financial assets to implement large-scale technological innovations in industrial production.

Over the past two years there has been a change in the financial structure due to raising interest to credits and loans. Thus, in 2012, raised credits and loans came up to 125,319.6 bln KZT which, in the cost breakdown, was 38.5% of the whole amount. The year before, in 2011, the rate of credits and loans in the cost breakdown came up to 4.3%. On the whole, it can be noticed that the share of expenses on technological innovations of the country's GDP is 1%, thus in 2012 the share of expenses of the country's GDP came up to 1.07%, compared to 2005 it grew by 19.3%. Although they tend to grow year after year, it should be pointed out that the funds allocated to technological innovations are scarce. Until 2012 the expenses on technological innovations were mainly financed by enterprises' internal funds (more than 85%), but in 2012 the situation changed.

The breakdown of the expenses for that year is as follows: internal funds – 47.1%; budgetary funds –11.9%; foreign investment – 2.5%; credits and loans – 38.5% (The Agency of Statistics of the Republic of Kazakhstan, 2012).

There hadn't been sources like credits and loans, venture capital funds, budgetary funds of development institutes in the financial sources of expenses on technological innovations before that year, making 2012 the year of funding innovations.

In the costs breakdown, the biggest share of funds (67.2%) is spent on machinery and equipment purchase. 12.9% is spent on R&D of new products, services and their production; 4.7% is spent on manufacturing research, preparations for new products, but only 3.2% is spent on new technology acquisition.

Hence, in the long term the breakdown should be changed in favor of research and creation of new products, as well as the acquisition of new technologies.

The next appraisal ratio of innovative potential is the use of information resources. Unfortunately, the official statistics doesn't provide detailed statistical information on innovations in the industry in general, and in its non-material sector in particular.

The data provided by Kazakhstan's Agency of Statistics proves the insufficient level of the use of information and communication technologies. Thus the share of enterprises which use computers came up to 66.9% in 2012; the share of enterprises which use Internet came up to 58.4%. The figures showing the use of the Internet for receiving and placing orders reveal the problems with ICT development in Kazakhstan.

Over the past years the number of enterprises in the ICT sector has grown. By the beginning of 2013 it came up to 5828 compared to 4930 at the beginning of 2009. Thus, the share of the production volume and the sale of products and services in the total GDP volume is growing (4.4% compared to 3.7%). Investments in fixed-capital assets of ICT are 3 times higher than in research and development (The Agency of Statistics of the Republic of Kazakhstan, 2013).

Over the past 5 years the number of enterprises creating and using ICT and technological items has grown more than 3 times. Nevertheless, the share of these enterprises compared to all other enterprises of the country is scant.

Conclusions and prospects for further research. The results of the conducted research provide the basis for further conclusions and proposals concerning the development of innovative capacity of manufacturing enterprises.

1. The analysis of the innovative sector in Kazakhstan at the present stage of development reveals that currently Kazakhstan has significant scientific and technical potential which enables the effective participation in scientific and technical supply of innovative development of the economy. Nevertheless, it can be noticed that, in Kazakhstan's economy there is a noticeable disproportion in the availability of innovation possibilities and their real practical implementations.

2. Only few enterprises can effectively realize their potential. The problem is connected with the lack of integrated research, methodological development and conceptual approaches to innovative vector of the enterprise activity.

3. The main reasons constraining the innovative activity of enterprises are: low demand for innovation from manufacturing enterprises; the lack of financial resources allocated to the development of science and innovation; and the shortage of skilled staff in science-intensive sectors of the economy. The number of new technologies obtained predominates the number of passed research development and technologies, which proves that Kazakhstan is suffering from a low level of implementation of national scientific research results and technologies.

4. In general the conducted analysis revealed certain positive trends between 2005–2012. However, if the received results are compared to the figures of the world's most developed countries, we haven't achieved a sufficient level of innovative activity at manufacturing enterprises; the efficiency of expenses use on technological innovations are still insufficient.

This can be explained, first of all, by the fact that foreign investors are not interested, or which is more, they don't want to invest their assets into the creation and implementation of modern technologies at national enterprises, particularly in Kazakhstan's processing industry. Secondly, Kazakhstani enterprises don't strive to carry out R&D on their own, and are not inclined to invest money in introduction of new products.

5. The issue of innovative industrial development and enhancement of innovative capacity of manufacturing enterprises of the country is still presently relevant to Kazakhstan.

In this regard Kazakhstan's scientists will, in the future, have to conduct integrated research, methodological development and conceptual approaches to the innovative development of enterprise capacity and its effective use.

The government needs to create a complex mechanism that will enhance the enterprise innovative activity.

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