

MANAGEMENT OF INNOVATION IN THE MODERN KAZAKHSTAN: DEVELOPMENT PRIORITIES OF SCIENCE, TECHNOLOGY AND INNOVATION

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ABSTRACT

Kazakhstan's economy has expanded rapidly over the last decade, posting one of the fastest paces of growth in the region. As a country with abundant natural resources The paper analyses the national innovations systems, the institutional framework of innovation policy and the state of science, technology and innovation (STI) in the Republic of Kazakhstan. As a country with abundant natural resources, Kazakhstan is still facing challenges in transforming into a knowledge-based economy. The strategic course of Kazakhstan for industrial-innovative development provides necessary conditions for elaboration and implementation of new scientific ideas and technologies. The strategy of development of Kazakhstan till 2050 together with such documents as the Strategic Development Plan up to 2020, or the State program of Forced Industrial-Innovative Development of Kazakhstan for 2010-2014 provide regular, necessary conditions that support the development of research, technology and innovation in Kazakhstan.

Keywords: innovation policy, industrial-innovative development programm, technology, economic growth, national innovation system.

1. INTRODUCTION

Kazakhstan is an upper-middle company, according to the World Bank classification with GDP per capita of around 12.000\$ in 2012 [1]. Large and sparsely populated, the country is rich in natural resources, with very significant reserves of oil, gas, minerals. While the development of its natural resources has provided a major impetus to the recent expansion of Kazakhstan's economy, the authorities have stressed the need to develop other sources of growth and improve overall economic competitiveness. In order to support these aims, growing resources are being devoted to the modernization of the economy and the revamping of its infrastructure, seeking to facilitate economic diversification. Kazakhstan set up different institutions and developed many programs aimed at encouraging innovation and modernization. Kazakhstan has put a growing emphasis on the promotion of innovation as a driver of economic development and diversification.

2. INNOVATION POLICY OF KAZAKHSTAN

Kazakhstan is becoming a critical part of the emerging "New Silk Road" that connects the East with Europe, Turkey and the Middle East. And advantageous geographical position, regional integration initiatives and an improving business climate are three key reasons why Kazakhstan is emerging as an attractive investment destination [2]. Kazakhstan has an increasingly business-friendly environment. Kazakhstan has an increasingly business-friendly

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environment. The World Bank's Doing Business 2013 index ranks it 49th, up from 56th place in 2012 [3]. Overall through, Kazakhstan was named as one of the 10 economies improving the most across three or more areas of doing business between 2011 and 2012. And the World Bank has included Kazakhstan in its list of the world's 20 most attractive investment destinations. Kazakhstan in 2012 for the first time reached a historic high in the growth of innovation indicators. Positive trend is due to the successful results of the State program of Forced Industrial-Innovative Development of Kazakhstan for 2010-2014. According to the report "Global Competitiveness Report 2013-2014" of World Economic Forum, Kazakhstan has improved by one position to rank 50th this year out of 144 countries [4]. The country benefits from a flexible and efficient labor market (15th) and a stable economic environment (23rd) at a time when many countries are struggling in these areas. Kazakhstan's main challenges relate to its health care and primary education systems (97th), its lack of business sophistication (94th), and its low innovation (84th)

According to this report Kazakhstan approached the group of countries driven by innovation [4]. Priority is given to innovative policies to encourage and promote business innovation, as well as the implementation of the technology transfer (table 1)

Stage 1 Factor-driven (38 economies)	Transition from stage 1 to stage 2 (20 economies)	Stage 2 Efficiency - driven (31 economies)	Transition from stage 2 to stage 3 (22 economies)	Stage 3 Innovation- driven (37 economies)
Kyrgyz Republic India Ghana Bangladesh Yemen Mali and etc.	Algeria Armenia Azerbaijan Bolivia Kuwait Moldova Saudi Arabia Philippines And etc.	China Egypt Romania Thailand Tunisia Ukraine And etc.	Argentina Brazil Hungary Kazakhstan Latvia Malaysia Russian Federation Turkey	Australia Austria Germany Japan Korea, Rep. United States Norway And etc.

Table 1. Countries/economies at stage development.

In the World Economic Forum GCI (Global Index of Competitiveness of the World Economic Forum), Kazakhstan joined the group of countries inspired by 'management efficiency' and 'innovations' along with such countries as Brazil, Malaysia, Turkey, Russia and others.

By 2016, GDP per capita in Kazakhstan is expected to reach US\$15000, compared with the current level of over US\$12000- and the country will be classified by the World Bank as "high income company". All in all, these are significant achievements for a country that only became independent over 20 years ago.

Innovation policy in Kazakhstan plays a great role in Kazakhstan's economic strategy. There is a clearly stated policy objective to move from an resource-based to a knowledge-based economy, using earnings from the oil, gas, and mineral sector to facilitate diversification and modernization [5]. A major challenge for innovation policies in

Kazakhstan is the weak domestic demand for innovation, which reflects the structural characteristics of the economy and the dominance of extractive industries.

3. NATIONAL INNOVATION SYSTEM

Innovations are one of the key factors, influencing the development and the progress of any society. Innovation capabilities of companies depend on a variety factors, such as R&D expenditure, knowledge management processes, culture, organization structure, management systems etc. [6]. In search of new, innovative ideas and solutions to undertakings tend to cooperate more and more often also colleges, universities and other public research is actually one of their missions. Concept of the National System (NIS), proposed by Freeman is widely used. Freedman definition of an NIS is ‘the network of institutions in the public and private sectors whose activities and interactions initiate, import, modify and diffuse new technologies’ [7]. The central actors in the NIS system are business enterprises, which require internal R&D capacities to innovate successfully. The concept of the NIS remains the basis for innovation policy in many countries. Governments have an important role in fostering innovation. Innovation, like all economic activity, is contingent on a number of conditions that interact with the different elements of NIS. In particular these framework conditions define a suitable business environment that facilitates entrepreneurship and innovation.

The programme for Innovative Development and Support for Technological Modernization of Kazakhstan for 2010-2014 recognized the need to develop the NIS on the basis of integrated and interrelated and systematic actions that address the different factors influencing the generation, dissemination and commercialization of knowledge (Table 2) [8].

1 stage	2 stage	3 stage
2010-2014	2014-2020	2018-2025
Creation of the competitive industrial and technological base	Development of the innovation market	Increase of the innovation economy
Challenges of innovations		
1.Technology modernization	2.Creation of the economy bases for the future	3.Creation of the favorable innovative environment
To raise the technology level of the operating enterprises will promote the ability to accept innovations, and then not only to become consumers, but to become a generators of innovative technologies.	a)To identify high-tech industries that will become a base for technological competitiveness of the economy of Kazakhstan in a long-time period; b)to develop own scientific competencies of the economy of Kazakhstan in a long-time period.	Increase of the NIS elements coordination, analytical support to the innovative processes, science and innovation propaganda, legislative base improvement.

Table 2. Development of national innovation system

The key to a successful National Innovation System rests on the creation of synergies between the various Sector and Regional Innovation Systems. As modern science is a multidisciplinary activity, knowledge-generation institutions have a major role to play in creating such synergies, as they facilitate exchanges between scientists and engineers of different disciplines.

The main strength of Kazakhstan is the support for Science, technology and Innovation at senior levels in the government. The Government of the Republic of Kazakhstan has adopted a wide range of policies and made substantial investments in support of innovation. For instance, plans for increased spending on innovation by large state companies may provide new impetus, including the decision to allocate 10% of the net profit of Samryk-Kazyna, National Welfare Fund, on innovation-related projects. The need to increase domestic demand for innovation, to diversify the concentration of economic activity, to structure a comprehensive strategy for Human Capital Development, and to establish and strengthen a tradition of commercializing research are among the key areas that need to be given special attention. A major challenge for innovation policies in Kazakhstan is the weak domestic demand for innovation. In this context, one way of overcoming this obstacle is to enter foreign markets with a high demand profile for innovative products and diversify and reach new target markets other than Russia and China.

4. A KEY MECHANISM FOR DEVELOPMENT

The 2010-2014 state program on accelerated industrial and innovative development was established to promote stable and well-balanced economic growth. The program targets diversification of the economy and improved competitiveness by developing priority sectors and supporting industrial development.

And industrialization map is the key mechanism used to implement the program. The Government and the business community work together to identify specific projects that meet the program's requirements and plot them on the industrialization map. Currently the industrialization map includes 779 projects, which have a combined value of KT 11.2t (US\$74.7b). These projects will create approximately 220,000 jobs during their construction period and around 181,000 jobs when they are put into operation. Contribution of these projects to GDP in 2012 is 1.3% [9].

Results for the first three years (2010 to 2012) of the program:

- Number of projects put into operation: 537
- Total investment: KZT 2.1t (US\$ 14b)
- Jobs created: 57,000.

The main programmatic document is the State Programm for Accelerated Industrial Innovative Development (SPAIID) 2010-2014, part of the Development Strategy 2020 that was approved in 2010 and covers 2010-2020. In addition to the SPAIID, the Development Strategy 2020 includes a Health Programme, Education Programme, Language Programme and others (Table 3). SPAIID has 13 sectoral programmes and ten functional programmes. It builds on earlier measures and includes regional development plans and sector plans.

In accordance with the provisions of the SPAIID, the Ministry of Industry and New Technologies is in charge of elaborating the intersectoral plan for scientific-technological development until 2020. The priorities identified in this plan are reflected in the criteria used for access to different mechanisms of support (grants, consulting services, business incubation). Innovation grants in Kazakhstan are [10]:

1. Grant for industrial research;

2. Grant for supporting of high-tech goods production at the initial stage of development;
3. Grant for patenting abroad or in regional patent organizations;
4. Grant for technology transfer;
5. Grant for technology commercialization;
6. In the frame of state program 'Performance 2020'
7. Grant for training of technical staff abroad;
8. Grant for attraction of highly qualified foreign professionals;
9. Grant for attraction of consulting, design and engineering organizations;
10. Grant for implementation of management and production technologies.

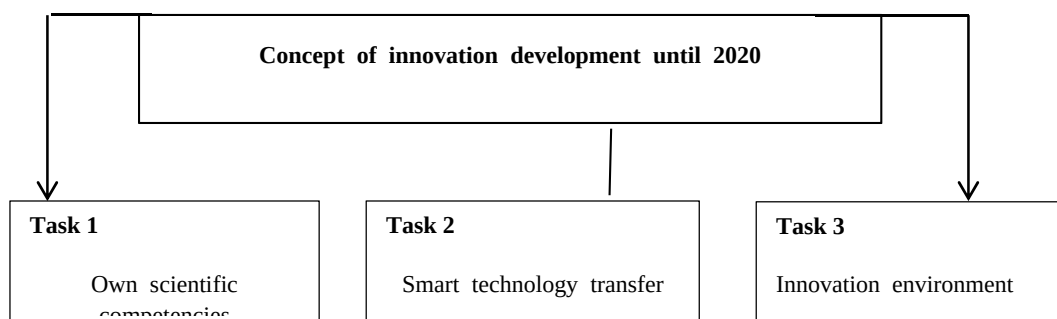


Table 3

5. CONCLUSION

For Kazakhstan it is essential not only to focus on industrial innovation, but also to complement them with suitable innovative business models (i.e, a combination of technological innovation and business innovation). Current investors are much more aware of the country's environment and are willing to explore further possibilities in the market. Conversely, Kazakhstan needs to change the widely held perceptions of potential new investors. Most seem not to have Kazakhstan on their investment radar or remain unaware of the country's attractive features, locations and sectors that present opportunities for growth. To overcome this motivation, it is essential that the Kazakhstan Government intensifies its efforts to communicate the country's potential to the rest of the world. Even in a challenging global environment, the message can get through that Kazakhstan is building a solid framework for moving up the value chain and is developing a welcoming business culture that is conducive to innovation and growth.

Kazakhstan has the opportunity and potential to improve its capacity to innovate, and join the world leaders in innovation. Towards achieving this, Kazakhstan should ensure the effectiveness and coherence of all the constituent elements of the National Innovation system. Ensuring the market economy with a dynamic innovation capacity requires not only sound government policies and tools, but also private sector initiatives. Being a young market economy, Kazakhstan has strong potential, and should give special attention to effective partnership between public and private sector for generating an environment conducive to a functional knowledge-based economy.

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